

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

HOME EQUIPMENT NUMBER

American Carpenter and Builder readers are the men who are called upon to recommend, specify, and use the various materials and special equipment needed in modern building. They are keenly interested in all labor-saving and comfort-making appliances for the home. Knowing this, I have had this Special Home Equipment Number prepared. In it you will find some very interesting articles dealing in a practical way with Modern Heating, Plumbing, Systems of Lighting, Water Supply—both Cold and Hot, and other Special Utilities for the well-equipped dwelling.

Chas. Radford
Editor - in - Chief

TRY BEFORE YOU BUY

**Let us send you the "LITTLE GIANT"—Freight Prepaid
Absolutely FREE of any expense to you whatever**

A request from you brings the "Little Giant" to your door—you send no money and we pay all expenses. After you have given it a fair trial and have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you do not think it is the best floor scraper made, return it.



**20,000
"Little
Giants"**

are in use throughout this country and abroad. These were purchased because they were **better**; because they did more work—did it quicker, cleaner and cheaper—than any other machine made. So great is our faith in its ability to prove its worth to you that we are making the above liberal proposition.

TRY IT ON YOUR OWN FLOOR

You can try the "Little Giant" on your own floor and the trial costs you nothing. All that we ask is that you give it a fair trial. You be the judge and jury. Every carpenter and contractor can afford to invest in one as the time and money saved will pay for the machine in a very short time. By using the "Little Giant" you will be in a position to estimate much lower than your competitor and therefore have more work. Can you afford to be without this machine?

Ask for our Special Price

Hurley Machine Company

31 South Clinton Street, CHICAGO
1011 Flatiron Building, NEW YORK
73 First Street, SAN FRANCISCO

"THOR" MODEL HOME ELECTRIC LAUNDRY

(Operated from any Electric Lamp Fixture)

Over 9,000 Homes now use the "Thor" for Washing,
Wringing and Ironing Their Clothes.
No change required in your home.



The "THOR" Electric Home Laundry Machines are on the cylinder principle just like the large laundry machines but are built especially for home use. Made in two sizes. Will last a lifetime. Write for Booklet.

HURLEY MACHINE COMPANY

Chicago
31 S. Clinton St.

New York
1011 Flatiron Building

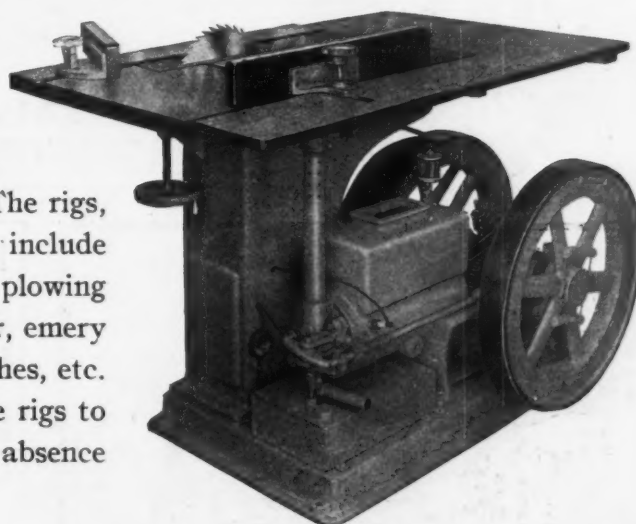
San Francisco
73 First Street

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

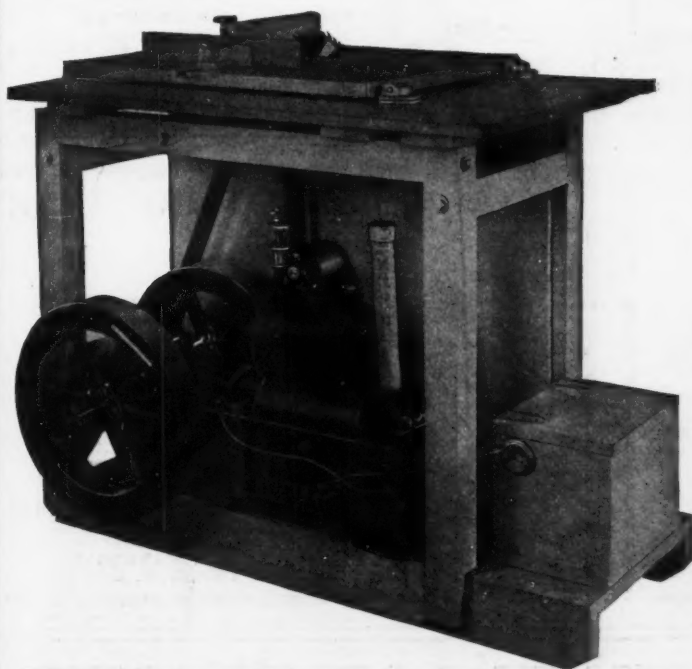
ON THE JOB OR IN YOUR SHOP

THESE portable saw rigs will do all of your millwork and can be moved from job to job with ease.

The engines furnished with these rigs are strong and water-hopper cooled. The rigs, ready to start when they reach you, include cross-cut and rip saws, dado head for plowing window and door frames, belt tightener, emery wheel for sharpening your tools, wrenches, etc. Two years were spent in getting these rigs to balance perfectly, and there is a total absence of vibration.



The All-Iron Rig, as shown here, weighs 1150 pounds, crated—the Engine being a strong six-horse, and pulls 14-inch saws



The All-Wood Rig, with Iron Table, as shown here, weighs 520 pounds, crated—the Engine being a strong three-horse, and pulls eight-inch saws :: :: :: :: ::

These two Rigs are strong and will stand the very hardest kind of usage. They make you independent. We absolutely guarantee these outfits or return at our expense.

**WRITE FOR OUR
FOLDER AND
ATTRACTIVE
PRICE**

Inter-State Equipment & Engineering Co.
Old Colony Building :: :: :: :: CHICAGO, ILL.

**LOOKED AT IN THE RIGHT LIGHT—
COURT OF APPEALS DECIDES
IN OUR FAVOR!**

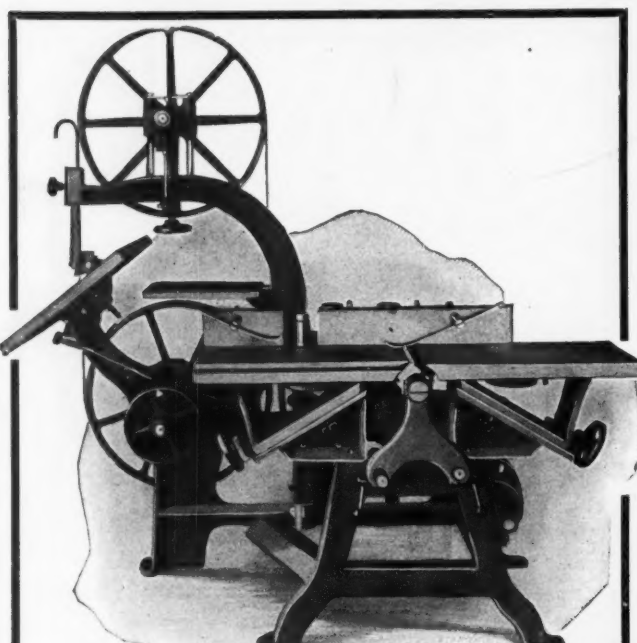
In the suit for infringement of Patent for "Sheet Metal Elbows and process of making same," instituted by Ferdinand Diekmann against us, the United States Circuit Court of Appeals for the Seventh Circuit, decision of the United States Circuit Court, Eastern District of Wisconsin, which dismissed the bill for want of equity. Furthermore, on Nov. 10, 1909, Fairfax Shepard, Examiner of Inventions, decided that priority of invention of a "Machine for forming Sheet Metal Elbows" is awarded to the Milwaukee Corrugating Co., as assignee of the patent.

**MILWAUKEE
CORRUGATING CO.**

MILWAUKEE, WIS. KANSAS CITY, MO.

**THE WORLD'S BEST
MILWAUKEE
ELBOWS**

BUY
LENN'S
KUTOFF
IT'S UNEQUALED

The Accompanying Cut Represents Our

Famous Universal Wood Worker

Eight machines in one. Our full page ad in the October number of this paper will show you some of these different attachments.

The Sidney Tool Co. - Sidney, Ohio, U. S. A.

THE NEW SASGEN CIRCLE SWING DERRICK

**No Stiff
Legs**

**No Guy
Lines**

Light in weight, speedy in operation, all malleable castings; weight 250 lbs., capacity 1000 to 1500 lbs.

Fully equipped. Ready for use.
F. O. B. Chicago.

\$35.00

Sold on trial to all reliable contractors. Catalogue FREE.

Manufactured by
SASGEN BROS.,
2744 Lincoln Avenue
CHICAGO, ILL.
New York Office: 103 Park Ave., N. Y.



BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest—Cheapest—Best

Send for Catalogue of all kinds of Vises

PRENTISS VISE COMPANY, MAKERS
44 Barclay Street, New York, U. S. A.



THE HAVEN FLOOR PLANER

HERALDS THE NEW ERA IN FLOOR SCRAPING

Eliminates all defects found in other floor machines. Does away with the man-killing toil of the heavy-weight machine. Makes floor scraping simple and agreeable. It embodies the mechanical principles of the plane. Planes and scrapes floor at one operation. Does better work than most hand work. "Wavy" floors prevented. Most rapid scraper on the market.

Be an agent in your locality for the floor planer of the future.

Particulars on request.

THE HAVEN MFG. CO. : : RACINE, WIS.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

OUR 1910 MODEL—Just Out

**The ANDERSON
AUTOMATIC
ADJUSTABLE**

SPRING-DRIVEN FLOOR SMOOTHER

**WITH ATTACHMENTS
AND ACCESSORIES**



Meets every demand of practical men for a machine that will scrape and sandpaper a floor and do it right. It has all of the ready adjustability of a hand-scrapers—the necessary weight to keep it from jumping, and the motive power to enable the operator to do ten times the amount of work that can be done by hand.

Guaranteed to do satisfactory work on all kinds of new or old floors.

Will scrape a varnished or painted floor cheaper than it can be cleaned with chemicals and leaves a smooth even surface in the one operation.

Just the thing for the Contractor and Builder, Painter and Floor Finisher, Skating Rink Owner, Bowling Alley Man, or the owner and operator of Flat Buildings and large public and private institutions.

Assorted knives and special attachments to meet every requirement in floor smoothing work, can be had with the TRIPLE "A" OUTFIT.

Let us know your needs, or the class of work you have to do and we can furnish you with the proper equipment. In buying the Triple "A" outfit, you are not compelled to pay for a lot of junk you have no special use for. The machine and each attachment has its separate price and purpose. You buy only the things you actually need in your line. Simply write and tell us what business you are in and what you wish to do in the line of floor surfacing and we will send you illustrated literature on the best equipment on the market for your particular kind of work.

Each machine is regularly equipped with our Automatic Motor Spring, two Detachable Weights, an Adjustable Knife Clamp and Attachment Holder, and the following accessories: six 4½ by 8 inch solid steel knives (containing no slots). These knives are assorted as to thickness and the radius of the edge, and are especially adapted for the various classes of Floor Scraping. Also—two Files (one coarse and one fine); one Oil Stone; one Burnishing Steel; one Wrench and Handy Tool Kit for the above.

In addition to this our 1910 MODEL is equipped with a Safety Guard which prevents any possibility of leaving knife marks on the floor. With this, an inexperienced operator cannot fail to do good work.

Any or all of the Following Attachments can be furnished and used in connection with our TRIPLE "A" FLOOR SMOOTHING OUTFIT.

The A. A. A. Knife Sharpener with which anybody can secure a true, perfect cutting scraper edge. Used without removing the knife from the smoothing machine.

The A. A. A. Smoothing Shoe Attachment, used principally for truing up Bowling Alleys and Parquette Floors and wherever a true level surface is required on ordinary floors. Acts like the shoe of a plane or cabinet scraper and is quickly adjusted to the machine.

The A. A. A. Sand-Papering Attachment, the use of which we recommend when an extra fine finish is required. Adjusting this attachment to the machine is no more bother than to change a knife. The A. A. A. Sander works with a rocking motion which automatically clears the dust from the sandpaper and prevents choking up.

Every outfit insured by our guarantee to keep it in free repair for a year should anything unlooked for occur.

Write us today for illustrated literature and special trial offer of the most complete floor surfacing outfit on the market, or let your dealer order it for you and save the bother.

TRIPLE "A" MACHINE CO., 1020 Chicago Opera House Building
CHICAGO, U. S. A.



"A Bit Of Utility"

Guided by its circular rim—instead of its centre—the Forstner Labor-Saving Auger Bit will bore any arc of a circle, and can be guided in any direction.

Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

Unequaled for Delicate Work

Supersedes chisels, gauges, scroll-saws, or lath tools combined, for all kinds of delicate work. Cabinet and pattern makers and carpenters are enthusiastic because they do more work than other bits and cost no more.

We can offer something special in the matter of price on sets packed in a sensible box. Send today for particulars and catalog.

The Progressive Mfg. Co.

Torrington,

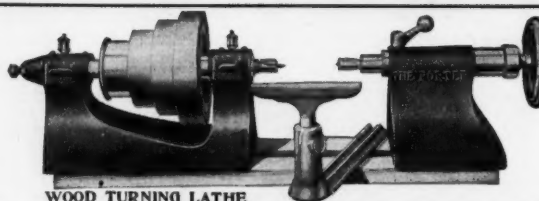
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"THE PORTER" Wood Turning Lathes

for wood turners and pattern makers. Furnished complete with countershaft, rests, steps, bolts, center and face plate. A high grade machine at a reasonable price. We also make Hand Jointers, Shapers, Swing Cut-off Saws, Pony Planers and Post Boring Machines. Better get our Catalog.

C. O. PORTER MACHINERY CO., Grand Rapids, Mich.



Established 1872

Everything in Hardware

ELECTRICAL SUPPLIES

OF ALL KINDS

TOOLS

FOR EVERY TRADE

BUILDERS AND GENERAL HARDWARE

MOST COMPLETE LINE IN THE WEST

HAND DUMB WAITERS ELECTRIC

COOLING ROOMS and REFRIGERATORS

FOR HOTELS, RESTAURANTS, MARKETS, ETC.

MARKET AND GROCERS' FIXTURES

BUTCHERS' SUPPLIES

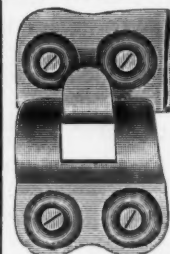
Our Goods are the Best that Money
can Buy—Make us Prove it

Orr & Lockett Hardware Co.

71-73 Randolph St., Chicago

FRESH AIR IN THE BED ROOMS

Don't cut holes in the storm window frames. Hang them with **Gossett Hinges** and swing them out at the bottom for ventilation. Special fasteners lock them securely, opened or closed. Easily put in place, just hook them on. No tools or ladder needed because of the **PATENT GUIDE FLANGES**



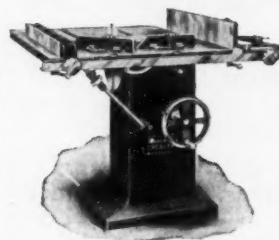
Easily taken off to wash windows. Full length screens can be hung with the same fittings. Screens and windows last longer. They'll not be left on after their season, it's so easy to make the change. No loose parts to get lost, nothing to wear out. 50,000 doz pairs sold this year. If your dealer can't show you Gossett Hinges send for complete set for actual test. Free to carpenters, contractors and planing mills.

1/2 SIZE **F. D. KEES MFG. CO.**

Box 522

BEATRICE, NEB.

The World's Best SAW BENCH



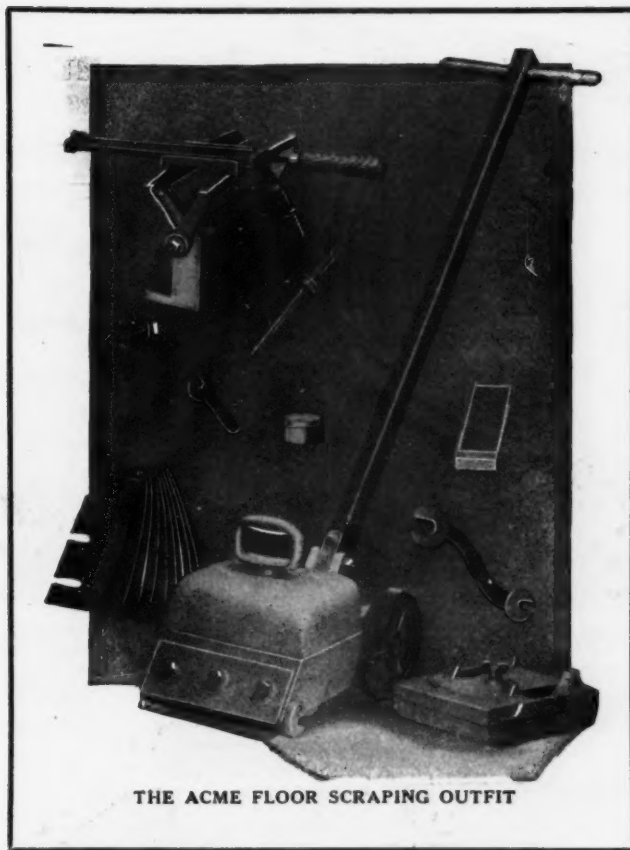
This machine is a dandy. It is strongly built. The arbor moves up and down in an arc so that the belt is always tight. Equipped with four gauges, two saws and counter shaft, including our splendid gear operated double acting, tilting, ripping fence.

Send for complete catalog of Saw Benches.

THE CRESCENT MACHINE WORKS

38 - 50 SOUTH FRONT STREET, GRAND RAPIDS, MICH.

TRY THE "ACME"



THE ACME FLOOR SCRAPING OUTFIT

Before investing your money in a Floor Scraper. You want the best, don't you? Then let me send you an **Acme Floor Scraping Outfit** on a **Week's Free Trial**.

If the same is not satisfactory, send it back.

Remember, the Acme Floor Scraping Outfit is the only complete equipment on the market to-day.

Booklet and further information mailed on request.

JOSEPH MIOTKE

247 Lake Street

MILWAUKEE

SARGENT'S IMPROVED STEEL SQUARE

The difference between good and indifferent Carpenters' Squares lies in something more than excellence of material and workmanship, which are, of course, among other "Sargent" features—it is in the qualities that increase its all-round efficiency. That is why the practical "Sargent" Standard Steel Square is the universal favorite wherever Squares are used. Our latest model has the scales and markings which enable the carpenter to lay out all kinds of work and to calculate quantities with an ease and accuracy never before thought possible. "A practical treatise on Steel Square" is what several recipients have declared our little publication. Copy free simply by mentioning you saw this ad in the American Carpenter and Builder.

Sargent & Company
1149 Leonard Street
New York

The Best Ever

You Will Never Regret Buying One



Wide Heel Brick Trowel

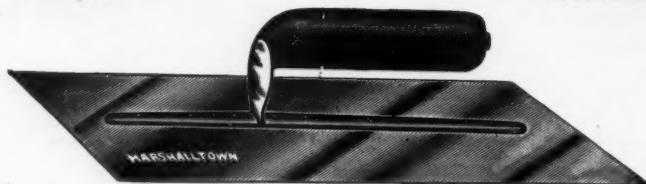
Made of Best Quality Crucible Trowel Steel.
Leather Handle.



Philadelphia Pattern

Best Quality Crucible Trowel Steel.
Wood Handle.

Send For
Catalogue



Send An
Order

Genuine Marshalltown Trowel

Straight Edges Always. Best Quality Spring Steel Blade. Hardened Mounting
Ten Rivets. Imitated because they are good.

Marshalltown Trowel Co., - - Marshalltown, Iowa

REMOVAL NOTICE

ISZARD-WARREN CO., Inc.

We beg to announce to our friends and customers that owing to the rapid growth of our business we find our present quarters inadequate for our requirements.

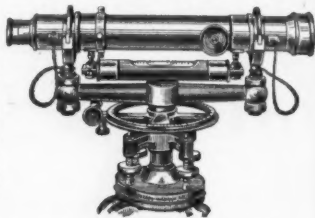
On November 1st we open our new four-story building at 136 North Twelfth Street where will be located our entire Manufacturing Plant, Sales-rooms and Offices.

We extend to you a cordial invitation to visit us, affording us an opportunity to demonstrate the perfect construction and extreme accuracy of "STERLING" Surveying Instruments.

Very Respectfully,

ISZARD-WARREN CO., Inc.

Address after November 1st:—136 North Twelfth St., Phila., Pa.



LUFKIN STEEL TAPES and RULES

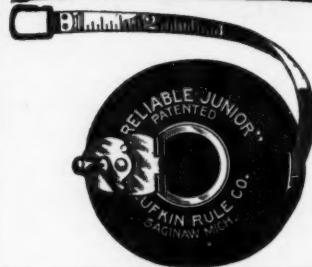
ARE INDISPENSABLE FOR ACCURATE WORK

MADE BY

The Lufkin Rule Co.

Saginaw, Mich., U. S. A.
New York London

For Sale Everywhere.
Send for Catalogue.



You can see just
how the blades on

The WEBER DOUBLE ACTING Floor Scraper

are perfectly adjustable

YOU can set your blade at the right angle easily and quickly, it makes no difference what the wood may be, Maple, Oak, Yellow Pine, Fir, etc., and you will do perfect work. The patented adjustable blade holder is an exclusive feature of the Weber, making it, without exception, the only perfect floor scraper made.

The blade holder is attached to a flexible frame by means of half-ball-and-socket bearings—this absolutely prevents chattering and leaving waves in the floor.

It scrapes close to the baseboard—is double-acting.

There are always two knives attached, either one ready for instant use, saving 50 per cent in time over any other floor scraper made. May be fitted

instantly with a Weber Sander Attachment, a Weber Wax Polishing Brush, or a Weber Shearing Cut Attachment—all of which are absolutely guaranteed.

Try it 10 Days FREE
I'll pay the freight

Not only that Mr. Contractor—send for any number of other floor scrapers and make comparison yourself. Try them on any kind of hardwood flooring, Maple, Oak, Yellow Pine, Fir, etc., and if you don't find the Weber to be the best, send it back—you won't be out a cent.

The Weber Automatic Sharpening Device keeps the knives in perfect condition without removing them from the machine.

Write for descriptive booklet and Price List—but don't buy a scraper until you have seen the Weber in action, or tried it yourself—and compared it with others.

John F. Weber, Pres.
Weber Mfg. Co.
670 71st Ave.
WEST ALLIS, - WIS.

The Union Floor Scraper

Price \$35.00

A money maker for the contractor and a satisfied customer every time a floor is scraped.

The Union will pay for itself in two days.

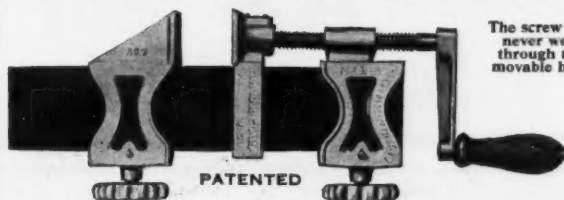
SENT ON
APPROVAL

GEO. J. BACHMANN
No. 501 Lyon St.
Grand Rapids, Mich.



WE
PAY THE
FREIGHT

The TODD Clamp Will Save You Money



The screw will never wear through the movable head.

Quick adjustment. No steel bars to spring. Clamping range unlimited. No notches to weaken the bar. Heads always square with the work. Send for circular giving full description.

BROWN SPECIALTY MACHINERY CO.,
Jackson Boulevard and Clinton Street, Chicago

ACKERMANN

Floor Scraper

If you are a carpenter, builder or contractor you need the **Ackermann Floor Scraper**. If you want a machine to **scrape floors** the Ackermann means more to you than a "machine on trial." We have given more attention to the **working** parts than the selling points. We keep improving the machine—not the way to sell it. But—you can use an Ackermann Floor Scraper at our **expense**. We ship at our expense to **prove** the machine is what you want. And, if you can show that the Ackermann does not do **more work, easier work and better work** than other floor scrapers, you **get the machine free**.

J. B. Ackermann Co.
100 Pearl Street
GRAND RAPIDS,
MICH.

Knife Sharpening Device

A new feature is the Ackermann **New Knife Sharpener**—which insures a sharp edge all the time and which works automatically. It means a big saving in time and labor.

The request brings the machine to your shop for you to use free.



BUY THE BEST



"The Sweetness of Low Prices never equals the Bitterness of Poor Quality."

—"Character"

It always pays to buy the best tools for not only will they do better work and give better satisfaction in the beginning, but the durability of superior materials will make them outlast the cheaper kind.

GOODELL-PRATT TOOLS

are designed by expert workmen for the use of expert workmen. They are made from the highest grade of material carefully selected for the work it is to do.

The thorough workmanship and the handsome lasting finish of our tools are well known to most carpenters. To those who do not know us we offer our catalog free.

GOODELL - PRATT COMPANY

Toolsmiths

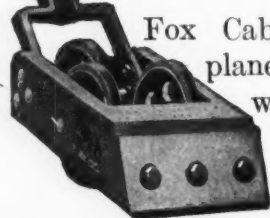
GREENFIELD, MASS., U. S. A.

**Fox
Floor
Scraper
No. 1**

A Perfect
Machine
for
Perfect
Work

Remember—THE FOX PAYS FOR ITSELF

"Your hardware dealer will order it for you. They all handle the Fox Floor Scraper because it does better work and more of it in less time than any other machine on the market and is conceded by all to be the easiest running machine ever built."



Fox Cabinet Scraper works like a plane. A FINE TOOL for fine work. Price, express prepaid, \$1.25.

(Write us for Catalogue.)



Fox Cabinet Scraper



Brooklyn, Wis.

LUMBER, ROOFING AND PLUMBING

2,000,000 ft. new and second hand lumber at \$8 per M. ft. and up. Laths, shingles, doors, windows, finish mouldings, etc. New bath tubs with nickel plated fittings, \$8 to \$17.50. Low tank combination closets, complete, \$10. White enameled lavatories, \$4.50 to \$9.

24 gauge galvanized iron corrugated roofing, \$2.50 per 100 sq. ft. 24 gauge black iron corrugated roofing, \$1.50 per 100 sq. ft. Rubber roofing, 108 sq. ft., with nails, etc., \$1.10 per roll. All sizes in pipe valves, fittings, etc.

SEND US YOUR BILL FOR OUR PRICES

CHICAGO WRECKING and SUPPLY CO., 3640 Manchester Avenue, St. Louis, U. S. A.

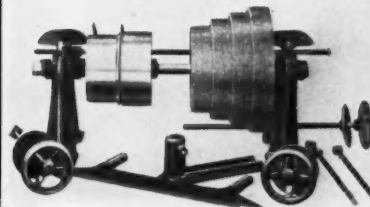
Do Your Own Millwork!!

Stop paying somebody else profit—put it in your own pocket. Be in a position to estimate below your competitors. You can do this by installing your own Machinery

Money-Saving Machinery



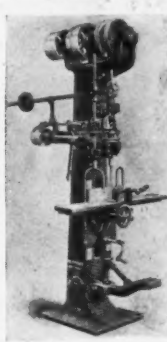
Wood Turning Lathe and Countershaft
16 and 20-in.



Chicago No. 35 Pony Planer



Chicago No. 7
Improved Swing Saw



New Hermance No. 1
Heavy Power Mortiser

THE contractor and builder who installs his own woodworking machinery can easily estimate under his competitors. Modern economic conditions **demand** it. Money you expend in millwork is profit for somebody else—the profit that rightfully belongs to you.

500 Machines in Stock

For a small investment contractors can obtain sufficient machines from us to make them independent. We have new machines, direct from manufacturers, and many rebuilt machines as good as new. 500 machines are constantly in stock at our warehouses.

Prices are Favorable

Our line is the most complete in the country and our prices are most favorable. All our machinery is of special construction to secure fine finished surfaces and reduce sand-papering to the minimum.

Send for Lists and Circulars

Our monthly list of rebuilt machines (free to contractors) shows just the machines you ought to have. Write today.

Chicago Machinery Exchange

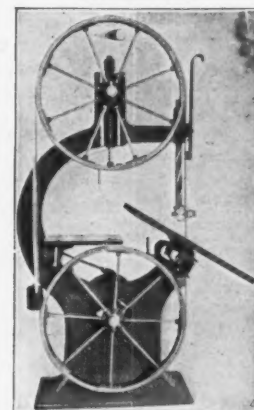
7-11 North Canal St. CHICAGO



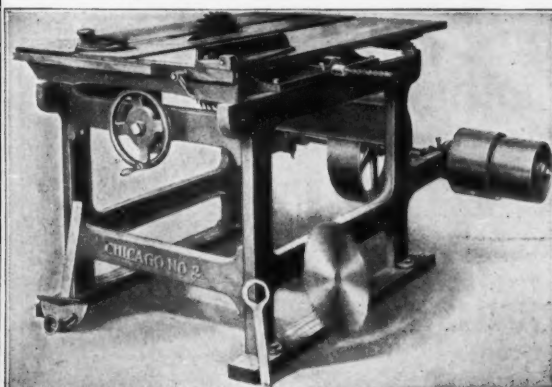
New Hermance No. 3 Tenoner



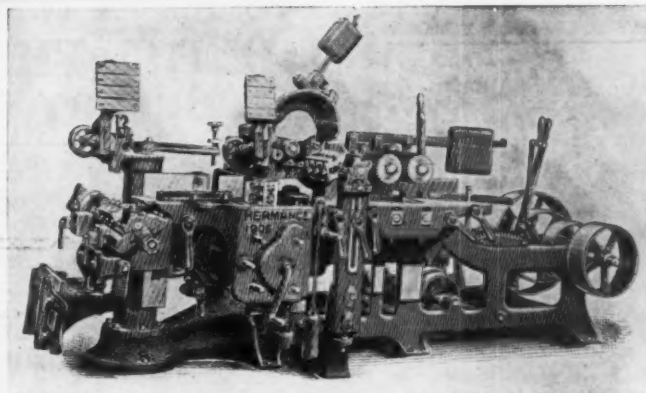
Chicago Hand Jointer
8, 12 and 16-in.



Chicago No. 1 Band Saw
27, 32 and 36-in.



Chicago No. 2 Combination Saw Table
An excellent machine for ripping, cutting-off, mitering, dadoing, etc.



Hermance New 1909 "Wide-Open" Moulder
Up-to-date and a little ahead



The American Floor Surfacing Machine

is the original and only two-roll, self-propelling, dust-collecting machine, protected by U. S. and Foreign patents, and the only one that will satisfactorily surface any kind of a wood floor, and has been in general use by contractors, hardwood floor companies and others for over five years.

Its work is rapid, regular, smooth and even, because the power that drives the rolls propels the machine at the same ratio of speed.

Its work has established the standard for surfaced floors, and the only machine whose work is specified by leading architects and meets the requirements of contractors, owners and hardwood floor companies for finely finished, smooth, even floors.

It has surfaced and polished millions of square feet of the finest floors in America and Europe.

Don't be fooled with an imitation, but get a machine that does work in paying quantities, and can be operated in small rooms.

The only one whose construction is guaranteed and sold on its merits.

Write for our book, "Surfacing Floors as a Business."

Manufactured by

The American Floor Surfacing Machine Company
TOLEDO, OHIO

CONTRACTORS'

Portable Combination Woodworker

GAS, GASOLINE or ELECTRIC POWER

Rip Saw
Cut-off Saw
Jig Saw
Dado Head
Molder and Shaper
Jointer
Sander
Boring Machines
Emery Wheels

A practical machine for every contracting builder, jobbing shop, cabinet maker, etc., combining nine machines, so assembled that they do not conflict. Large table surface. The power, 4-H. P. Engine, is rigid in the frame and machine can be used in the shop or on the job.

Send today for circular fully describing the best combination woodworker ever built.

C. A. & F. G. Diffin

Builders' Exchange

PHILADELPHIA, PA.

We Furnish Machine, Engine and Tools Complete.

Used by Contractors, Lumber Yards and Railroads Everywhere



New Starrett Protractor

One of the most useful tools a carpenter ever had. See full description in free Catalogue No. 186. With this tool in your chest you can give away half a dozen or more which it will render back numbers

The L. S. Starrett Co., Athol, Mass., U.S.A.



COMPLETE OUTFIT

Hand and Foot-Power MACHINERY

Our No. 3 Wood Turning Lathe can be speeded from 1,000 to 2,000 revolutions a minute with perfect ease. Stopped or reversed at will of operator.

Write for Particulars

W. F. & Jno. Barnes Co. 74 RUBY ST., Rockford, Ill.

The Bit Made Of
**GENUINE
CRUCIBLE
STEEL**

THE BIT THAT'S FIT FOR EVERY PURPOSE

Bores smooth and clean
without choking or splitting



LOOK FOR **RUSSELL JENNINGS** ON THE ROUND
MANUFACTURING CO.

CHESTER, CONN., U. S. A.

**FIRST
QUALITY
ONLY**

Put On The Market

21-2



Copyright, 1909, By The Stanley Rule and Level Company

Stanley Tools

"A PLANING MILL WITHIN ITSELF"

The "55" Plane will do a greater variety of work than can be done with a full line of so-called Fancy Planes. It is 10 inches long, weighs only 7½ lbs. (with 93 cutters—11 lbs.) and replaces practically the complete line of Fancy Planes weighing probably 90 lbs. The regular equipment sent with this Plane comprises the 52 Cutters marked ♦. A further line of 41 Special Cutters is regularly made. *Send for Catalog containing complete description.*

STANDARD
THE WORLD
OVER

Stanley

Rule & Level Co.

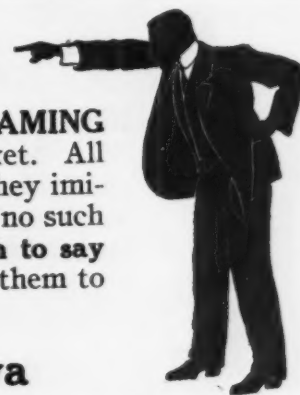
NEW BRITAIN, CONN. U.S.A.

EVERY
TOOL
GUARANTEED

It's Up to You, Mr. Carpenter,

To see that the Dealer furnishes you with the **NICHOLLS FRAMING SQUARE**, which is the first Framing Square ever put on the market. All others are imitations. If it were not a good thing, why should they imitate it? We have learned of late that some dealers say there is no such Square made; others say they cannot get them. **Well, we wish to say** they can get them for you, and if they will not, we will furnish them to you direct from the Factory and prepay the freight.

NICHOLLS MFG. CO., Ottumwa, Iowa

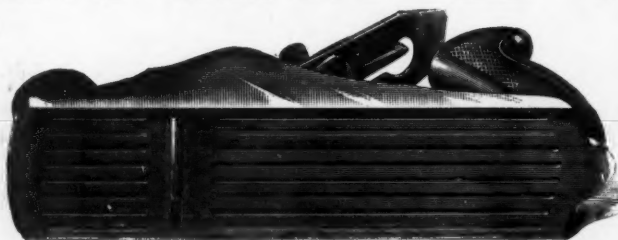


FAR AHEAD for smooth, easy work and holding edge will be YOUR VERDICT ON TRYING

CHAPLIN'S IMPROVED PLANES

Patented Feb. 14, 1899; Dec. 30, 1900; Dec. 24, 1902

We invite the
Severest
Comparative
Tests

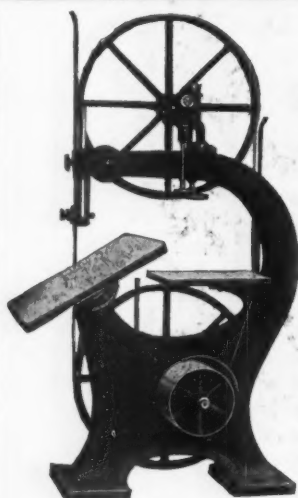


We want you to have a copy of
our booklet

"A 'Plane' Talk About
a Good Plane!"

We want you to have a copy,
for it is a booklet you really need
in your business.
We'll gladly send you this
booklet with our compliments,
promptly upon receipt of your
request.

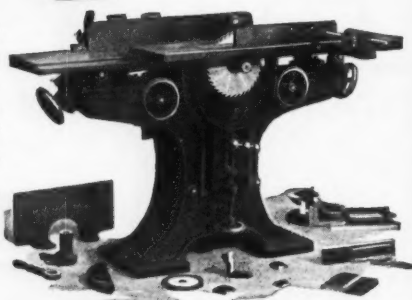
Tower & Lyon Company, 95 Chambers Street, New York



YOUR SHOP EQUIPMENT

should include a Crescent Variety Wood Worker and a Crescent Band Saw. With these two splendid machines you can do any ordinary job of wood work that is brought to you. Both machines are well built, will give you entire satisfaction, save money for you, and you will be surprised to know how reasonable the price is.

Ask us today
for our 80-page
catalogue tell-
ing about our
elegant line of
jointers, saw
tables, planers,
shapers, planer
and matcher.

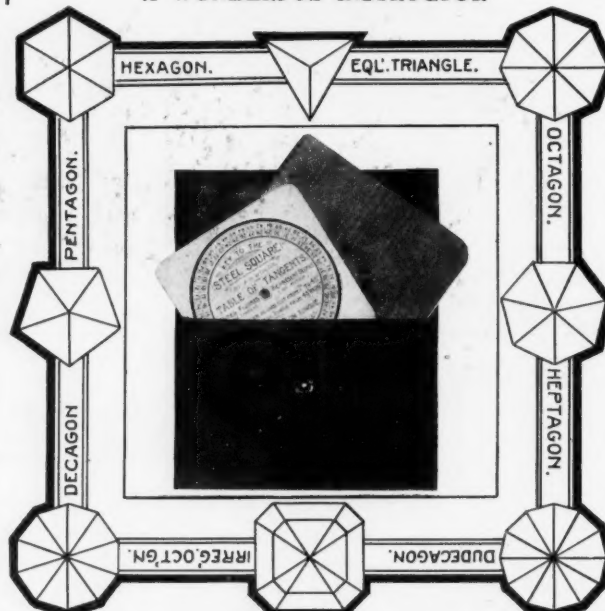


THE CRESCENT MACHINE COMPANY

224 Main Street

LEETONIA, OHIO

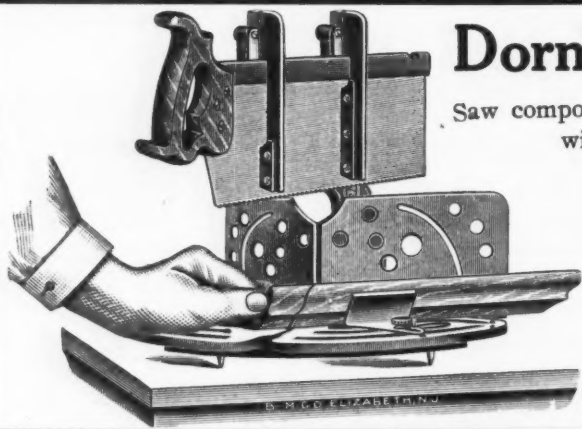
ALFRED W. WOODS' KEY TO THE STEEL SQUARE A WONDERFUL INSTRUCTOR



It should be in the possession of every carpenter, or those having work in angles. It tells the whole story of how to use the common steel square, to obtain the cuts in degrees, or by inch rise per foot run for all kinds of framing.

Price \$1.50, Postpaid

AMERICAN CARPENTER & BUILDER
185 Jackson Boulevard, CHICAGO

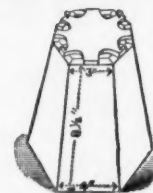


Dorn's Revolving Mitre Box

Saw compound as well as plain mitres any width
with a back saw 4 inches wide

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IT TELLS THE STORY



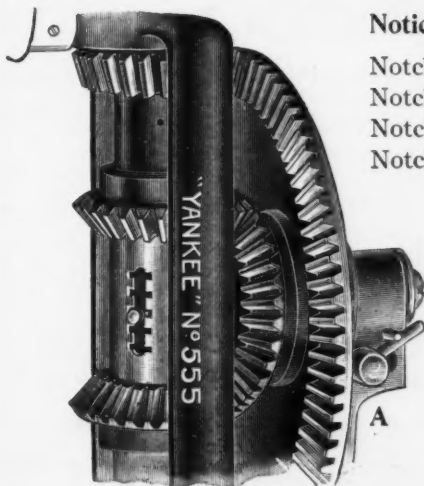
Compound Mitre

MANUFACTURED BY

Braunsdorf-Mueller Company
1093 E. Grand Street, ELIZABETH, N. J.

"YANKEE" Breast Drill with Automatic Double Ratchet Adjustable Ball Bearings

The
Latest
and
Greatest



Notice the little shifter between the gears:—

Notch 1—gives you a plain drill.

Notch 2—A Left Hand Ratchet for removing taps, etc.

Notch 3—A Right Hand Ratchet.

Notch 4—An Automatic, Alternating Right and Left Hand Ratchet, the bit turning continually to the right regardless of the motion of the crank. A great advantage at close quarters where only a short throw of crank can be obtained. A true time saver.

Notch 5—Locks drill for opening and closing chuck.

Lever A—Change of speed with forefinger, without releasing hold on crank or removing bit from hole.

Your Dealer sells "YANKEE" TOOLS

NORTH BROS. MFG. CO., Dept. A, PHILADELPHIA, PA.



Send for
TOOL
BOOK



Price \$7.50

CARPENTER'S BORING MACHINE

WE do not offer this machine as a low priced one, but do say without hesitation that it has no equal in merit and style. It is durable, neat in appearance, folds up compactly for shipping, and never fails to give entire satisfaction.

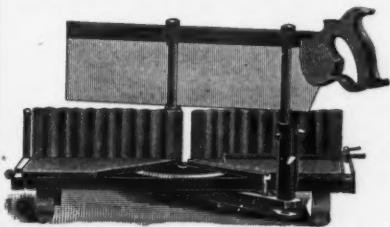
It can be used either in upright position, as shown in the cut, or in a moment's time adjusted to any angle required. The power and speed are regulated by the extension cranks. The sale of a machine in any neighborhood invariably brings orders for more. Ask for catalogue illustrating our full line of tools.

MILLERS FALLS COMPANY

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GOODELL MITRE BOX

Made of STEEL - Cannot Break



First in Quality
and
Improvements
Automatic Stops
for
holding up saw.
Corrugated Backs.
Graduated.
Gauge for dupli-
cate cuts and many
other features.
Send for Circular
"C"

GOODELL MFG. CO., Greenfield, Mass.



This DUMB WAITER

complete ready
to erect for \$18.50

SELF RETAINING MACHINE
HARDWOOD CAR

SECTIONAL WEIGHT

ROPE, GUIDES, HARDWARE,

knocked down and shipped with the only
complete directions for erect-
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SEND FOR SPECIAL PAMPHLET

R. M. Rodgers & Co.

174 Washington Av., BROOKLYN, N. Y.



This hook bolt can be inserted or removed through a one-inch hole bored in the sheathing. It hooks around the studding. Where it is desired to plaster inside before scaffold is down, a piece of 2"x4" turned flatwise may be used to fill in.

If you should wish to try a pair before ordering in quantity, write for terms of our special trial offer.

THE TAYLOR STEEL SCAFFOLD BRACKET

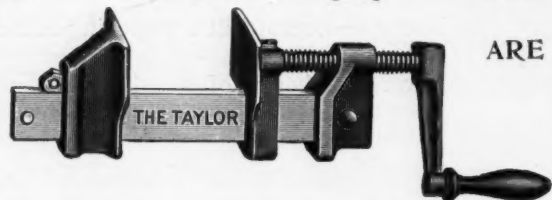
WHY THEY ARE BETTER THAN WOODEN BRACKETS:

They are **absolutely safe**; much easier to put up and take down—it only requires one man; a great deal stronger—each pair of the smallest size carry a ton weight; far more durable—consequently, decidedly cheaper; they last a lifetime.

Made of best quality angle steel in following sizes:

Length	Size Steel	Price per dozen.
48 inches	1½x1½	\$15.50
60 inches	1½x1½	20.00

Less 10% for cash with order.
Deliveries—F. O. B. Bloomfield, N. J.



ARE YOUR CLAMPS GIVING BEST RESULTS?

Let us tell you about **The Taylor Quick-Acting, Self-Locking.**
21 different styles.

JAMES L. TAYLOR MFG. CO., Bloomfield, N. J., U. S. A.

"OHIO" CHISELS

Are made from a High Grade of Tool Steel, Skillfully Treated, Correctly Tempered, Accurately Ground.



Every "Ohio" Tool is fully warranted. They have been on the market a great many years and the experienced mechanic who does not care to take any chances on tools of doubtful quality always insists on having "Ohio" Tools from his dealer. He knows them to be good tools, with keen and tough cutting edges.

Look for this trade mark when buying Planes, either Iron or Wood, Chisels, Drawing Knives, Auger Bits, Gouges, Spoke Shaves, Bench and Hand Screws, Cabinet Makers' and Manual Training Benches, Etc. Write for our Catalogue No. A, if you are interested in GOOD TOOLS.



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PARKS' COMBINATION WOODWORKING MACHINES

Make a Complete and Economical Operating Mill for Carpenters and Contractors. Take our No. 410 for instance—here is a Combination of Three Machines in One—

- A Table Circular Saw
- A Six-inch Joiner and Boring or Routing Attachment

Ready for Instant Use
No line shafts and large amount of floor space required.

SIMPLE—STRONG and Ready-to-Go—with little power. We deliver on short notice.

Prices and Catalogue on Request.

Parks Ball Bearing Machine Co.
Fergus and C. H. & D. Ry.
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Originators of the Circular Saw, Band Saw and Jointer Combination, also Foot and Hand Power Machines.

BOURNIVAL & CO., St. Barnabe, P. Q., Agents Canada



PARKER VISES



MADE ESPECIALLY FOR WOOD WORKERS

FOR SALE BY DEALERS

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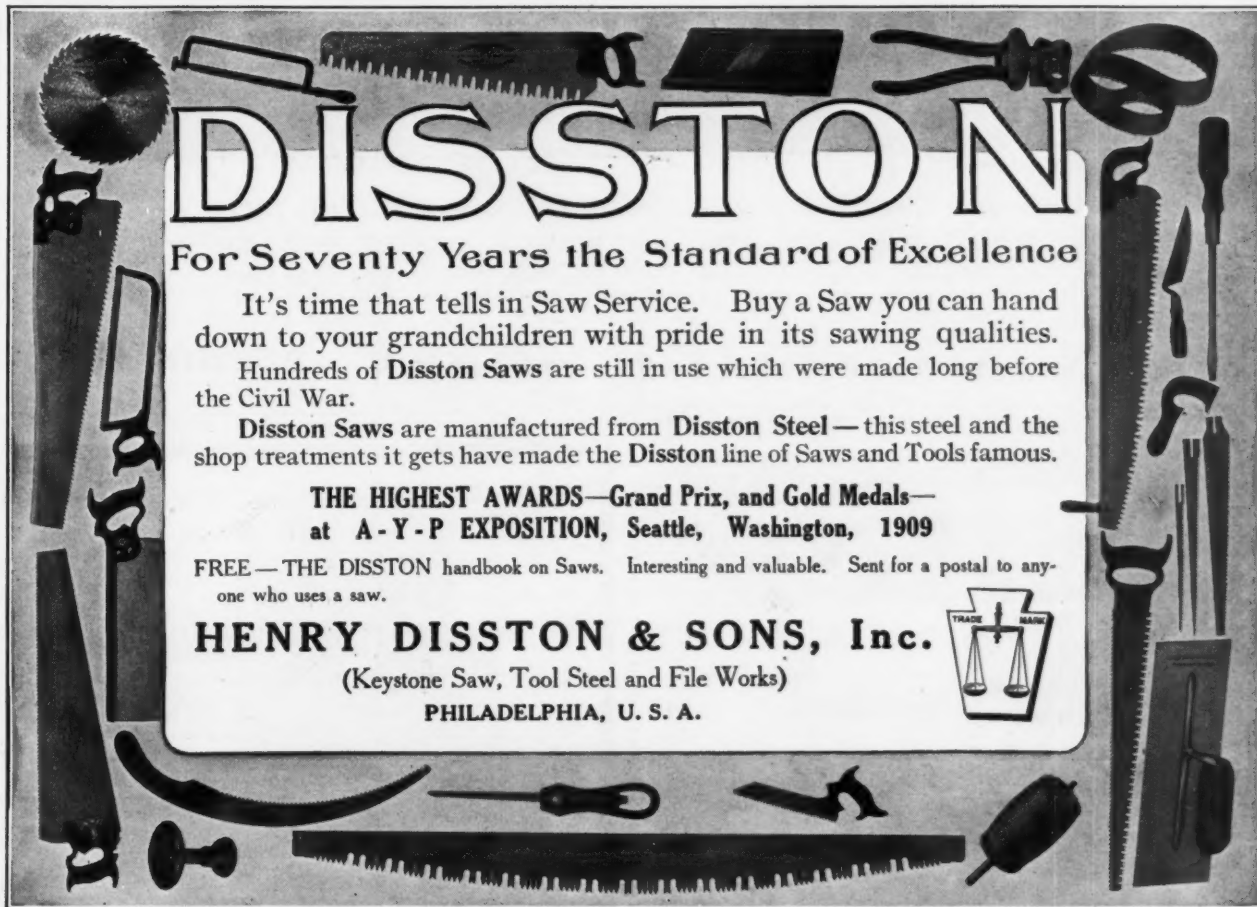
CHAS. PARKER CO.
MERIDEN, CONN.

SELF-SETTING PLANE

No plane like it. See this paper for December, pages 261, 320 and 323, for facts and large pictures. This advertisement authorizes any dealer to sell the **first SELF-SETTING PLANE** in any town on our regular 30 days' trial guarantee. If it is not more than satisfactory to their customers, the dealer may return it to us at our expense within 90 days of this date, and we will refund the amount he sent us. If your dealer does not care to supply you, try another; if he won't, send us list price and we will deliver the plane, charges prepaid, and if it is not just what you want, return it to the Express Co. within 30 days of your receiving it, and they will send it to us at our expense, and we will return you the entire amount you sent us and the trial won't cost you a nickel. This paper guarantees that we will do as our advertisement says. December 1, 1909.



GAGE TOOL CO., Vineland, N. J.



DISSTON

For Seventy Years the Standard of Excellence

It's time that tells in Saw Service. Buy a Saw you can hand down to your grandchildren with pride in its sawing qualities. Hundreds of Disston Saws are still in use which were made long before the Civil War.

Disston Saws are manufactured from Disston Steel—this steel and the shop treatments it gets have made the Disston line of Saws and Tools famous.

**THE HIGHEST AWARDS—Grand Prix, and Gold Medals—
at A-Y-P EXPOSITION, Seattle, Washington, 1909**

FREE—THE DISSTON handbook on Saws. Interesting and valuable. Sent for a postal to anyone who uses a saw.

HENRY DISSTON & SONS, Inc.
(Keystone Saw, Tool Steel and File Works)
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We want you to know that we carry a complete line of BUILDERS HARDWARE, including all the latest designs and finishes in stock.

FREE our latest catalogue and net price list to contractors, and material men.

REHM HARDWARE CO.
1501 Blue Island Avenue
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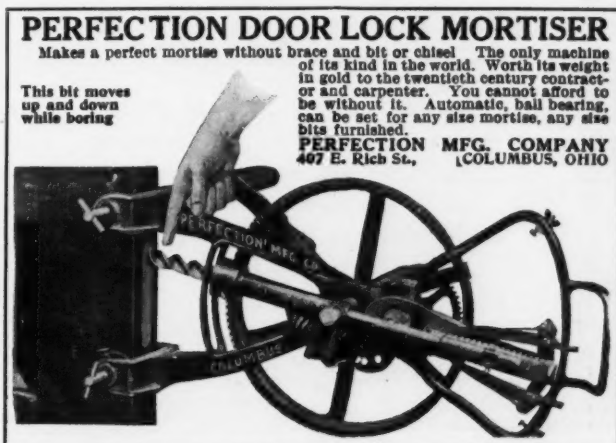
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For Wood Timbers,
Concrete Blocks
or Iron Beams.

Many Sizes in Stock
Special Shapes to Order

Steel Post Caps Wire Floor Clips
STRAPS, BOLTS, PIN ANCHORS
BLACKSMITH WORK AND
IRON FOR CARPENTERS'
REQUIREMENTS

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Chas. Mulvey Mfg. Co.
35th and Ashland Ave.
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PERFECTION DOOR LOCK MORTISER

Makes a perfect mortise without brace and bit or chisel. The only machine of its kind in the world. Worth its weight in gold to the twentieth century contractor and carpenter. You cannot afford to be without it. Automatic ball bearing, can be set for any size mortise, any size bits furnished.

PERFECTION MFG. COMPANY
407 E. Rich St.,
COLUMBUS, OHIO

This bit moves up and down while boring

Straight-grained cedar that cuts like cheese; smooth, tough leads that make clean-cut, strong marks—that's the way Dixon's Carpenter Pencils are described. Send 16c for generous sample lot 183 J.

JOSEPH DIXON CRUCIBLE CO.,
JERSEY CITY, N. J.



SAMSON SPOT SASH CORD



TRADE MARK

Be sure that the cord you buy has SAMSON AND THE LION on the label, and that the braid is marked with the COLORED SPOT. You may be sure you'll get the best.

WE'RE GLAD TO SEND SAMPLES AND FULL INFORMATION.

SAMSON CORDAGE WORKS, BOSTON, MASS.

PEARSON'S IMPROVED Nailer



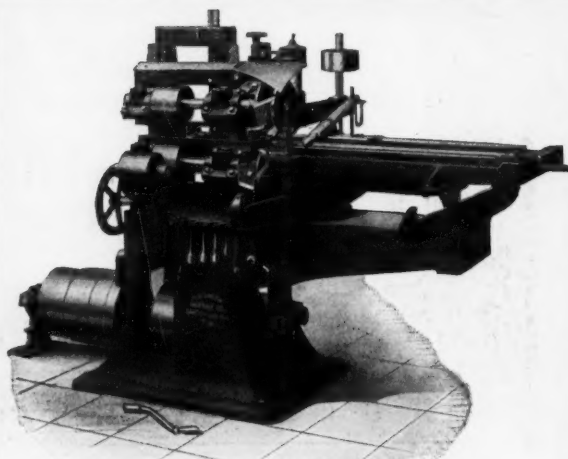
SEE THAT NAIL

HERE'S an improved hand nailing tool that can be used for driving small nails and is especially adapted for driving shingle nails. No trouble to handle, because it weighs only about two pounds. Can be used with gloves or mittens on and in any season.

Is operated as easily on a pitched roof as on the level surface. No slipping nails, no bruised fingers, no loss of time and temper.

Start saving money by making the Pearson Nailer part of your equipment. Your dealer has them; if not send to us. Complete information for a postal.

PEARSON MFG. CO., Robbinsdale, Minn.



No. 225-A Single End Tenoner

THE BEST SINGLE-END TENONER

The Framing is cast whole, therefore very rigid.

The Table is mounted on Roller Bearings, hence will move very easily and accurately at all times.

The Cutter Spindles are all made of high carbon steel, ground accurately to size and perfect roundness.

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SMITHVILLE, N. J., U. S. A.

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COMPO-BOARD

A substitute for Lath and Plaster.

Can be put on by any Carpenter.

It is Warmer, more Durable,

Quicker and more Easily Applied.

Manufactured all 4 ft. wide, 8, 9, 10,

11, 12, 13, 14, 15, 16, 17 and 18 ft. long.

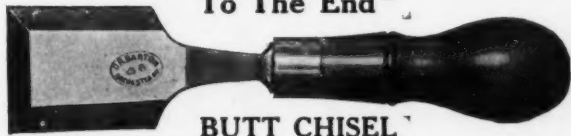
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Northwestern Compo-Board Co.

4800 Lyndale

MINNEAPOLIS, MINN

"Last a Lifetime and Give Satisfaction
To The End"



BUTT CHISEL

The celebrated Barton Planes and Edge Tools for carpenters and all other woodworkers are unequalled by any other make for keen, hard smooth cutting edges. If your hardware dealer does not handle

THE CELEBRATED BARTON TOOLS
send direct for catalogue. Be sure to specify
"CARPENTER'S CATALOG."

MACK & COMPANY, 20 BROWN'S PLACE
ROCHESTER, N. Y.



Don't Ask the Dealer for Sash Cord. Ask for

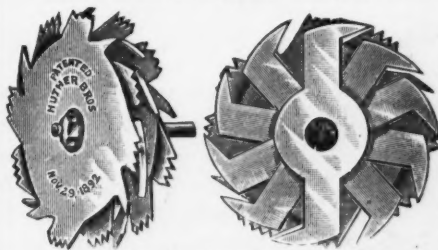
"SILVER LAKE"

and see that he gives it to you. It is impossible to



substitute, as our name is stamped on every foot of cord. Silver Lake Sash Cord is the Original Solid Braided Cotton Sash Cord, and has been the standard since 1868. No other is just as good.

Huthier Bros. Patent Groover or Dado Head



Showing Arrangement of Cutters.
of concave ground, smooth cutting circular Mitre Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock Corner Cutters, Concave Saws, etc.

Try our Scraper Blades and you will use no others.

HUTHIER BROS. SAW MFG. CO.
1000 University Ave. ROCHESTER, N. Y.

Can be used on
any Circular Saw
Mandrel.

For cutting any
width groove from
1/4" to 2" or over.
Will cut a perfect
groove, either with
or across the grain,
and leave edges
smooth. Will ship
to any responsible
firm on ten days'
approval; if not
satisfactory you
are at liberty to
return at our ex-
pense. We also
make a specialty

WHY A STAR BOLT HOLDS

The positive inner end expansion of the STAR is your guarantee that it won't pull out. Want to see for yourself?

Send for a free sample;

Drill your hole and insert shield; run screw through object to be fastened, on into shield in wall and fasten tight. Now brace yourself and pull. The more you pull, the firmer it becomes fastened. It can't pull out.

For samples and Cat. 29, address,

STAR EXPANSION BOLT CO.

"Catalog Department 29"

147-149 Cedar Street, NEW YORK CITY



No. 5 "Union" Combination

Self-feed Rip SAW and Cross-Cut SAW

(Almost a complete workshop in one machine.)

THIS MACHINE is suitable for various kinds of work—ripping (up to 3 3/4" thick), cross-cutting, mitering, etc., and with additional attachments, rabbeting, grooving, dadoing, boring, scroll-sawing, edge-moulding, beading, etc.

The heaviest, most substantial, accurate and easiest running machine of its kind on the market.

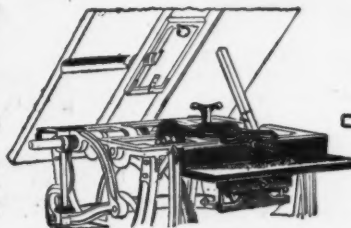
ADVANTAGES: Large adjustable combination wood and iron table 28x36"; folding extension rolls for long work; two hand powers, one for self-feed ripping and the other for cross-cutting, etc., arranged at the rear of machine, leaving table free and allowing operator a natural, upright and easy position; our patent foot power with walking motion; three changes of speed; three changes of feed; no lost motion, power being transmitted entirely by chain-belt and accurate machine-cut gears; steel shafts and babbit metal lined boxes, adjustable for wear; easy and quick to change machine from one operation to another.

WE BUILD a complete line of Foot, Hand and Power Wood-working Machinery, and guarantee each machine and attachment to be thoroughly practical and accurate, and if they fail to give you entire satisfaction, may be returned at our expense.

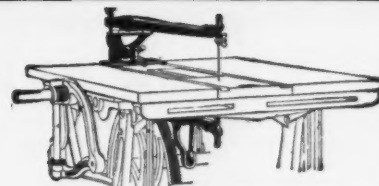
Machines sent on trial. Send for Catalog "A."

The Seneca Falls Mfg. Co.

218 Water St., Seneca Falls, N. Y., U. S. A.



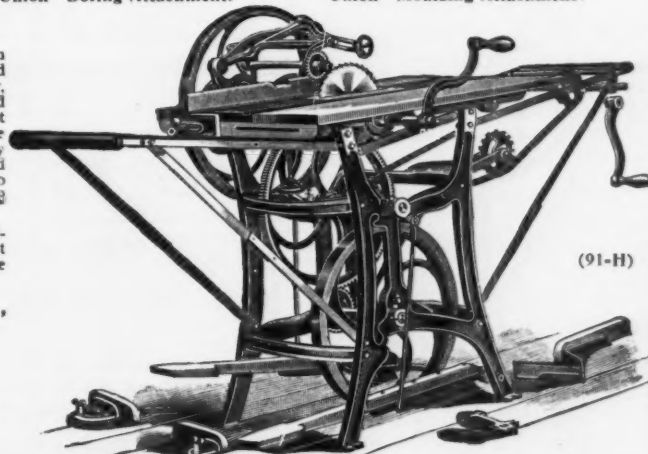
"Union" Boring Attachment.



"Union" Scroll Saw Attachment.



"Union" Moulding Attachment.



No. 5 "Union" Combination Self-Feed Rip and Cross-Cut Saw.

CHICAGO'S OLDEST, MOST RELIABLE AND PROGRESSIVE HARDWARE HOUSE

Dependable Merchandise at Lowest Price

STEBBINS HARDWARE CO.

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General Hardware, Builders' Hardware, Cabinet Hardware, Contractors' Supplies, Engineers' Supplies, Machinists' Tools, Carpenters' Tools, Electrical Supplies, Janitors' Supplies, Factory Supplies, Cutlery, Silverware, Etc.

OUR GENERAL CATALOG NUMBER 20 SENT UPON REQUEST

MONITOR SASH LOCKS



(PATENTED)

NEVER BREAK

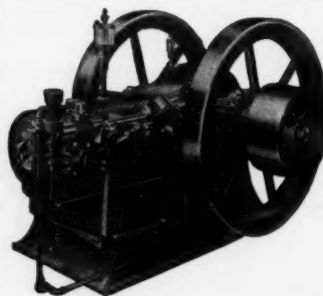
**BECAUSE THEY ARE MADE OF VERY HEAVY GAUGE
METAL AND PERFECTLY CONSTRUCTED**

If the upper sash drops, the Monitor "Never Break" Sash Lock will pick it up from a lower point than any other, adjust the sashes perfectly, prevent all vibration and lock securely, so it cannot be opened from the outside.

MADE IN TWO SIZES AND ALL FURNISHED BY

**The Champion Safety Lock Co.
Geneva, Ohio**

THE FOSS GASOLINE ENGINE DIRECT TO YOU



We save you from
25 to 40 per cent on
the Highest Grade
Gas or Gasoline
Engine.

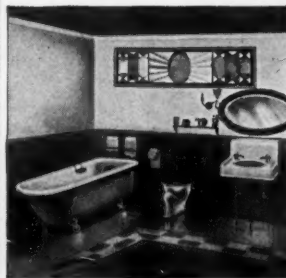
Write for Price
List and Catalogue.

FOSS GASOLINE ENGINE CO.

754 Portage Street

KALAMAZOO, MICHIGAN, U. S. A.

PLUMBERS' SUPPLIES AT WHOLESALE



When in the market for Plumbing Supplies and you wish to

**SAVE
20 to 40 Per Cent**

on every article, write for my free illustrated Catalog. The only house that sells first class guaranteed goods at wholesale prices direct. Shipments are promptly made from a very complete stock.

Small orders are as carefully handled as large ones.

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PERFECTION ELEVATORS

ARE
"BEST BY EVERY TEST"

For PASSENGER or FREIGHT SERVICE in Factories, Stores and Dwelling Houses.

Our Elevators are noted for their Easy Running and Serviceable Qualities. They are practically self contained and can be erected by any carpenter in a few hours. We furnish Plans for erecting. When writing, state your requirements.

Sidney Elevator & Mfg. Co., Sidney, O.

Miller's Lock Mortiser Does The Work

Cuts an opening for a Mortise Lock in any kind of wood, complete in three minutes, thick or thin doors, does not split the door and cuts true.

5000 Mortisers Sold Mean Something

READ, BUILDER, WHAT THE OTHER FELLOW SAYS

These statements came to us during November, unsolicited

"I am highly pleased with it."

"I gave it a severe test on a lot of oak veneered doors and it worked fine."

"It has paid for itself already."

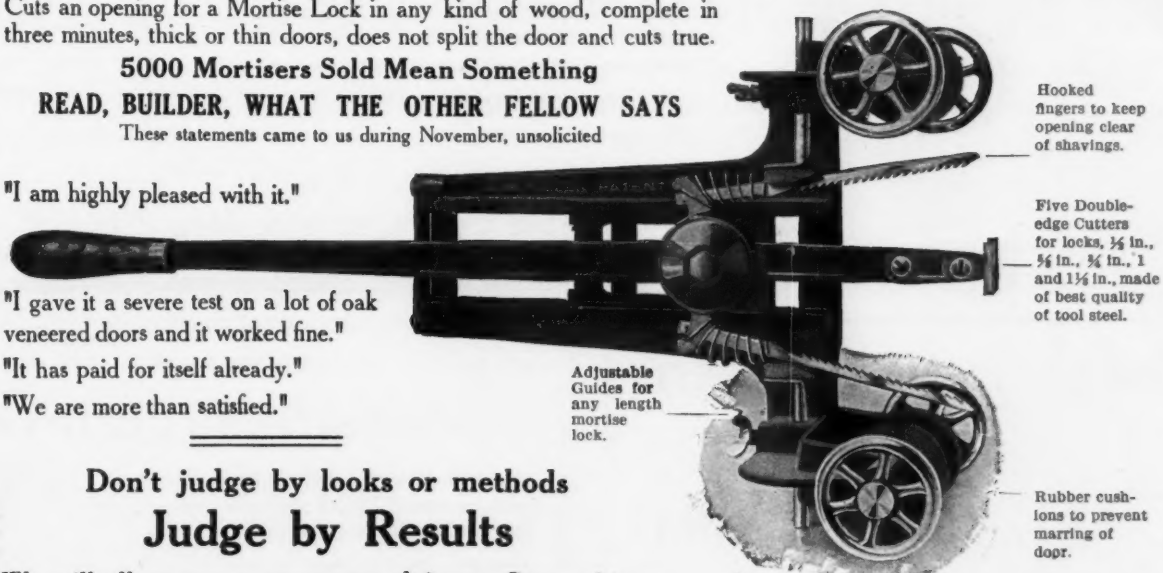
"We are more than satisfied."

**Don't judge by looks or methods
Judge by Results**

We will allow you to prove our claims. Sent subject to 10 days trial to any reliable contractor or builder. Write to us. We mean business.

A. W. MILLER MFG. CO., Main Office Cincinnati, Ohio

Our Butt Mortiser and Rule Gauge is a useful present for any Carpenter. Seventy-five cents brings them, if your dealer does not have it.



You Can Do Better Work

IF YOU USE THE ABC PROTRACTOR SQUARE

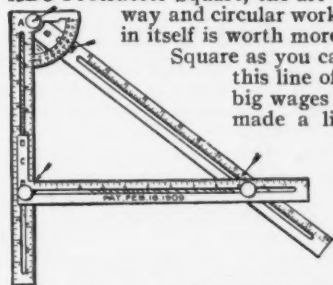
It combines five tools in one. The greatest time and labor saver on the market. Manual Training Schools throughout the country are adopting it.

No carpenter doing roof framing, stairway or circular work can afford to be without this handy tool. It folds up in a very small compass and can be easily carried.



A Free Course in Framing

For a limited time we will teach anyone, buying the ABC Protractor Square, the art of roof framing, stairway and circular work **absolutely free**. This in itself is worth more than the price of the Square as you can become an expert in this line of work and demand as big wages as a carpenter that has made a life study of the Steel Square. Write for full information in regard to this offer and literature.



Price \$3.00

CROOKSTON TOOL CO.

CROOKSTON

MINNESOTA

ROTHMOTOR DIRECT DRIVE BAND SAW

CONVENIENT

Saves time, space. Eliminates belts, shafts—Spells cleanliness

EFFICIENT

Consumes little power—means small power bills.

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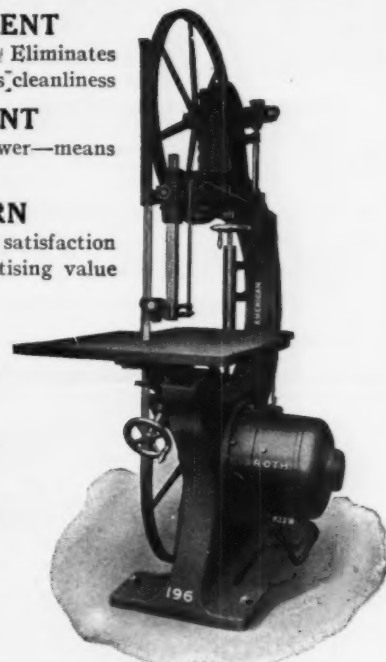
Always a feeling of satisfaction—has much advertising value to you.

RELIABLE

Always ready—A poorer outfit may break down when you have an important job on.

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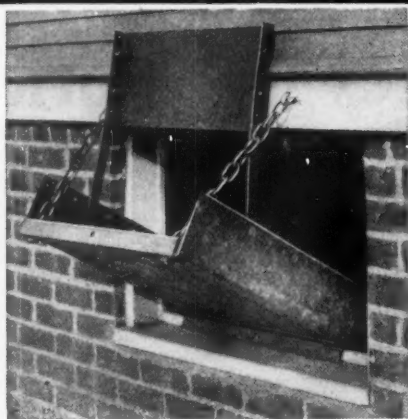
Never wear out—low maintenance cost.



ROTH BROS. & CO.

136 Liberty Street
New York.

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TAYLOR STEEL FOLDING COAL CHUTES

— ARE —

ABSOLUTELY ESSENTIAL TO A HOME

They are complete for any style of building—new or old, brick, stone, frame, finished or unfinished.

They are out of sight when not in use.

Taylor Coal Chutes protect all woodwork, and ordinary sash are used, keeping the coal window in harmony with the other basement sash.

This cut No. 4, installed in a few minutes. Cheaper than wood.

We make 5 styles of chutes.

Write for Literature

Taylor Coal Chute & Mfg. Co.

KEWANEE

“

432 Prospect Place

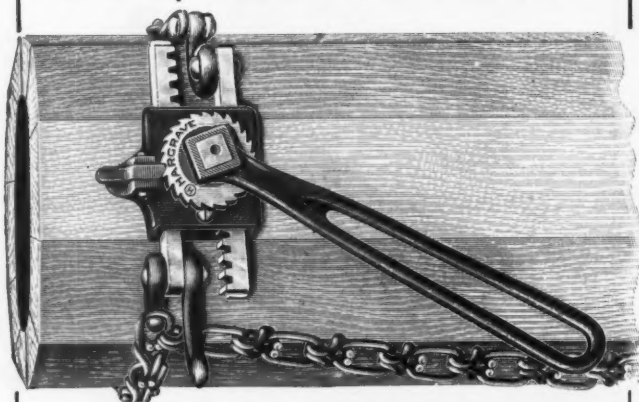
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ILLINOIS

Stop! Look! Listen!

^(H)
HARGRAVE

COLUMN CLAMP



**MOST PRACTICAL, QUICKEST ADJUSTED
ON THE MARKET**

Write for Circular

Price \$2.00 each

Department H,

The Cincinnati Tool Co.

NORWOOD, CINCINNATI, OHIO

GRAND RAPIDS

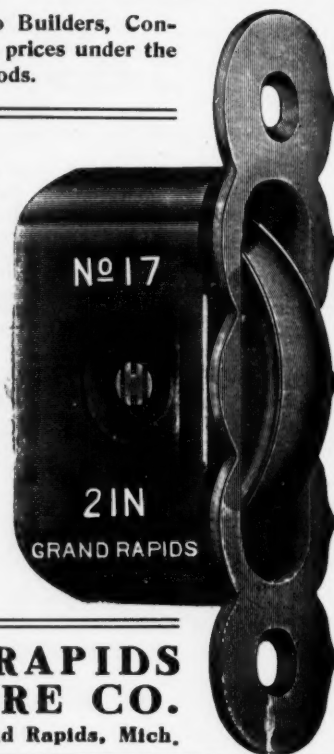
All-Steel Sash Pulleys

Are sold DIRECT to Builders, Contractors and Mills at prices under the common ordinary goods.

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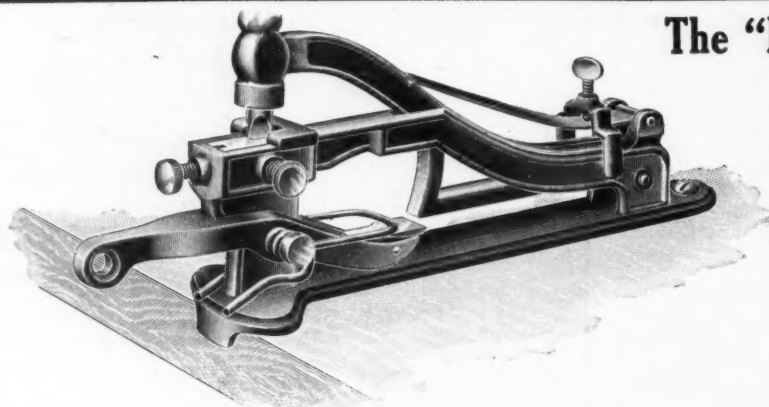
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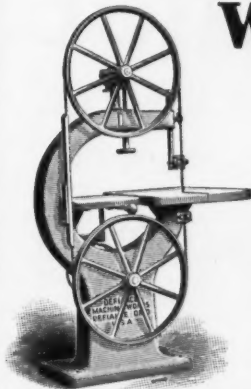
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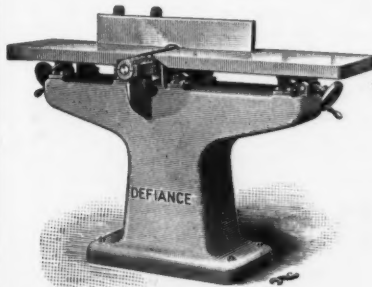
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Defiance, Ohio

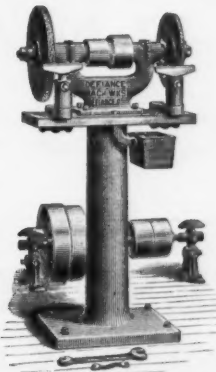
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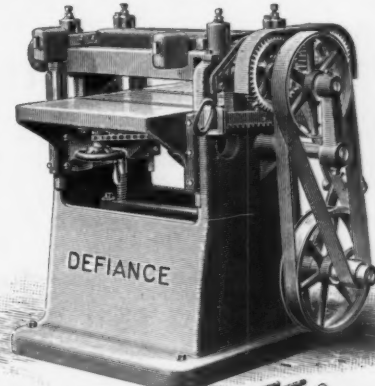
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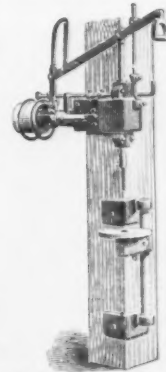
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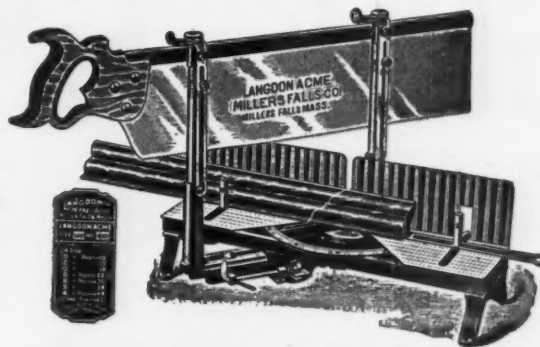
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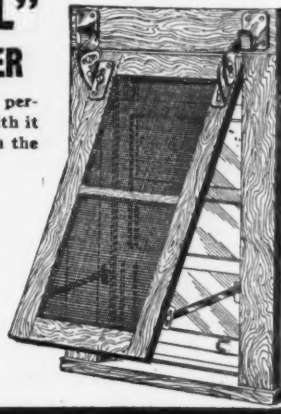
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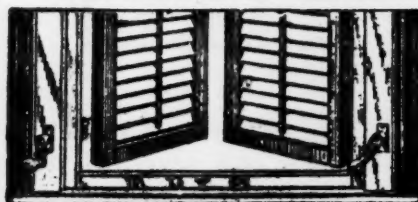


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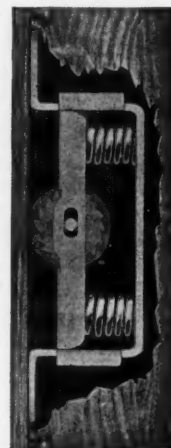
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Prevent rattling and permit the window to
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The Purest of Quality Our
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IN introducing our "GREYHOUND" brand of Saws to the trade, we have departed from our usual custom in naming instead of numbering the saw. This saw will be known as our "GREYHOUND" and will be the only Bishop brand of saw known by name.



We have had a Chemist experimenting for years to originate a purity of steel with a fine grain and tough body that would stand up under such a fearless warranty as we place on our "GREYHOUND" brand of saws. We now have it. We know its worth as well as its value. As workers of steel we understand it. We had to name it and we have christened it Bishop's Refined "GREYHOUND" Steel, associating our trade mark with its name. We have in this "GREYHOUND" Saw blade a purity of steel that is tough, tempers accurately and even—together with the special way it is made—enables us to guarantee that this "GREYHOUND" brand of Saws will cut faster and run easier in all kinds of wood, hold its sharpness and set longer than any other makes of good Saws in the world. We Refund the Money if 30 days' trial does not prove our guarantee. Our pride is quality with an honest opportunity for the purchaser to judge. Each Saw is tagged with our warranty on it. No expense has been spared to make this Saw the most perfect in the world. We invite correspondence with anyone who has our "GREYHOUND" brand of saws in use.

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In workmanship this saw possesses all the skilled mechanical features known to the art of saw making. The hang of the blade has been carefully studied and adjusted, to suit the fancy of the most critical.

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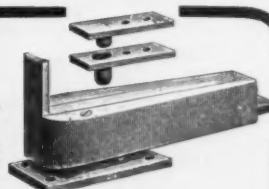
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The finish plates are either steel,
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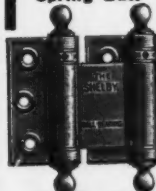
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American Carpenter and Builder

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VOL. VIII DECEMBER, 1909 No. 3

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WE WISH you all a Merry Christmas!

BE FRIENDLY—write occasionally.

Economical Use of Building Material

THE present effort on the part of west coast lumber manufacturers to include a certain percentage of odd lengths in all shipments calling for standard lengths, has aroused a storm of protest from representatives of the retail lumber and material dealers.

These contend that the manufacturers are trying to shift the burden of loss of the odd foot from them-

selves to the retail trade; that odd lengths can not be used to advantage, and that the retail lumberman, if forced to accept odd lengths, would be forced to sell them for even lengths. In support of this contention they cite the general practice of placing studding and joists 16 inches from center to center so that 4-foot or multiples of 4-foot stock only will cut without waste. They argue also that joints must be made on studding or joists and that if odd lengths of siding, ceiling or flooring be used it would be necessary to place the joists a foot apart instead of 16 inches; this saving in the covering of the building would be more than offset by the additional quantity of material required to make the frame.

At the outset it must be understood by manufacturers and retailers that odd length material can not be made standard without the co-operation of the carpenter contractors through the retail dealers. The retail trade rightly contends that odd length lumber can not be used economically by the builder; also that if odd lengths be offered that the price should be lower, so that some inducement may be offered the dealer to handle them and, in turn, by the dealer to his customers to stimulate their use.

A number of manufacturers on the Pacific coast now are making and shipping odd lengths of flooring, ceiling, siding and finish. The manufacturer holds that the greater portion of such material is cut into short pieces by the carpenter before becoming a part of the building. It is asserted further that odd length stock will cut to as good advantage as even length. Even a casual inspection of the exterior of frame buildings shows that fully as much siding is required between openings as below and above them. The spaces between windows and doors vary from 6 inches to possibly as much as 10 feet. The modern dwelling usually has a number of small projections, some of them not more than 2 feet and some as much as 6 or 8. At a venture it is probably safe to say that 55 per cent of the siding on a modern building is cut to lengths ranging from 6 inches to 6 feet. If the house be sheathed, then joints can be made at any point, and the only objection to the use of siding would come

from the carpenters, who could not cover so much space in a day, because of the necessity of making extra joints. However, it is not proposed to make all siding in short lengths. Take a building 28 feet long, two pieces of siding, one 13 and one 15-foot, will make a strip the entire length, or two 14-foot pieces or a 12 and 16-foot piece or a 11 and 17-foot piece. The carpenter surely would not object, providing, of course, something like suitable lengths were furnished.

Suitability of lengths of material for the building to be erected is a question which contractors and dealers should give very close attention. It is impossible to determine in advance exactly what sizes of material will be called for. Were it possible to do so the material dealers could put in proportionate supplies of the different grades and sizes and handle their business on a much more profitable basis with considerably smaller investment. The term "well assorted" does not apply to the stocks in a great many retail yards. Frequently the dealer is unable to supply the call for certain kinds of material and even long experience does not enable the dealer to foretell absolutely the requirements of his customers. It would require more preliminary work on the part of the dealer or builder to use odd lengths to advantage. It would be necessary to specify the approximate quantity of each length of different kinds of materials that could be used, and this would involve considerable close calculation. For example, instead of calling for 10,000 feet of siding, it might be necessary to specify one bundle each, 10, 11, 12, 13, 14, 15 and 16-foot stock, with a definite statement of the quantity of each short length that could be used without loss. To handle the business on this basis would mean real economy for lumber-yard men and a big advantage in competing for trade.

It would seem also that the judicious use of odd length stock by the building contractors would enable them to figure more closely on the quantity of material required in the construction of high-class buildings.

The Latest Wonder

THE newest wonder is Brennan's gyroscope railroad car, which runs on a single rail, can run on a tight rope, go up and down hill, turn corners swiftly and safely, all on the principle of the spinning top, which does not fall down so long as it goes on spinning. Two heavy gyroscopes rotating in vacuums in Brennan's car keep the car upright, and will not let it fall over. The principle was tried out two years ago in a model in Berlin. Its working was publicly shown last week in England with a 22-ton car which carried forty persons, running on two wheels up and down a straight, single-rail track and round a circular track 220 yards long. Enormous speed—150 miles an hour—is predicted for railroad cars of this type, as well as great economy

of power. It sounds fantastic and incredible, but the deeper one reads into its story the more serious and astonishing it appears. Louis Brennan, the inventor, has been at work for thirty years on the idea. He is the author of a successful torpedo, which bears his name.

Lend Us Your Plumb Line

BE FRIENDLY—write occasionally. The Editor would like to have a personal letter from every reader who has anything to suggest or criticize concerning the AMERICAN CARPENTER AND BUILDER. It looks good to us; how does it strike you? We want to build it strong and true, and so must test it continually with the plumb line of your honest opinions.

Does it help you in your work? Does it give you any new ideas? Does it ever make money for you? What part of the magazine do you read first? What department do you like best? Do the advertising pages list the materials and supplies you are in need of?

By writing you will help to make *your* paper just what *you* want it.

The Bungalow

1.

The Charlemagne McFaddens dwelt in an imposing pile

Of brick and mortar, fashioned in the early mission style.

2.

And in the house were mission chairs by which they set great store,

Whose mission 'twas to keep them all from sitting on the floor.

3.

They also owned some mission hens that furnished them with eggs,

And eke a little mission dog with quaintly Gothic legs.

4.

So in their early mission house they dwelt contented—very,

Till Uncle John got jaundice and became a missionary.

5.

Then in despair they tore their hair and turned to higher things,

And to their early mission house they added mission wings.

6.

Alas for wings and higher things! Alas! Alackaday! Equipped with wings, their mission house, it promptly flew away!

7.

Now Ma McFadden might have wept, and said a lot of things;

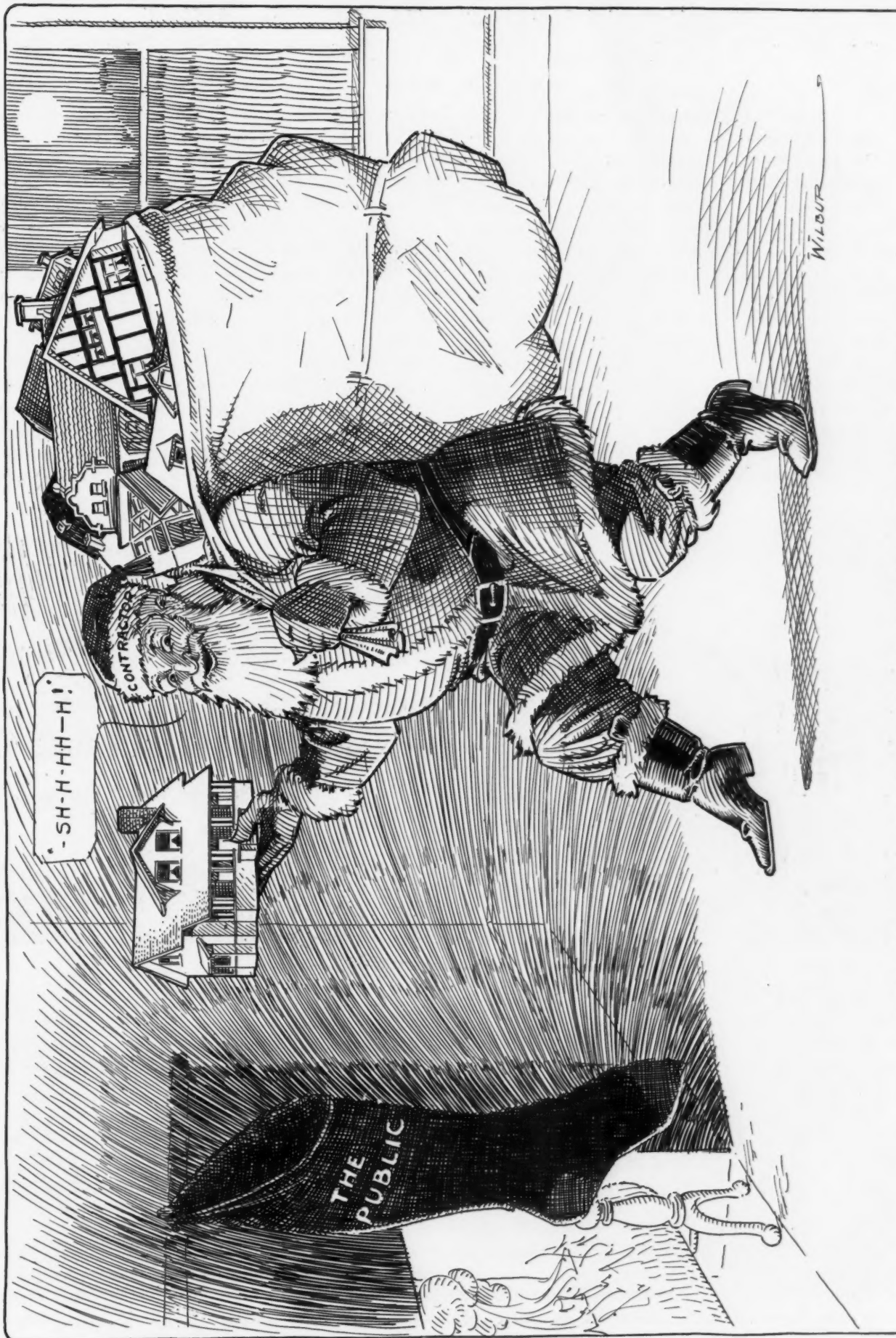
But all she said was, "Charlemagne, you should have clipped its wings."

8.

And Charlemagne replied, "My dear, I bungled, as you know,

By building high, so next time I will build a bungalow."

—Cosmopolitan.



A "Really and Truly" Santa Claus!—He Brings the Best Present

Bridge Framing—Wood vs. Steel

SOME SURPRISING ACHIEVEMENTS IN HEAVY TIMBER FRAMING, OLD AND NEW—ADVANTAGES OF TIMBER OVER STEEL FOR CERTAIN KINDS OF BRIDGES

By T. B. Kidner

IN THESE days of the all-conquering march of those mighty kings, steel and concrete, as materials of construction it cannot fail to be of interest to all engaged in that sort of work that there is at least one portion of this great continent of North America where the humble wood is still holding its own in a large measure as a constructive material.

The Canadian province of New Brunswick is entirely different in its physical conformation from the great prairie provinces of the northwest. Instead of vast plains stretching away for hundreds of miles, the face of the eastern province is broken up in every direction by hills and valleys, brooks and streams, lakes and rivers. As a consequence, bridges innumerable have to be provided on all the highways of the land and these are all in charge of the Provincial Government. The department of public works, with

240 feet span, resting on cribwork piers, are depicted, calls forth the admiration of all true lovers of craftsmanship. For it must be remembered that the problem of designing and constructing a wooden bridge of such a span was a vastly different task from that which confronts the modern designer of steel structures of similar size. With his formulas at hand to guide him, the modern draughtsman can go ahead and design his bridge with perfect confidence that the steel works can meet his every requirement in plate and girder, bar and bolt, rivet and pin.

But it was otherwise with the men who planned the old wooden structures, such as that shown in the illustration, whose first thought before putting a pencil to paper was as to what sort of timber could be obtained and in what lengths and sizes. Then came the problem of designing the joints; a matter which gave



Fig. 1. A Fine Old Wood Truss—240 Foot Span

a staff of skilled engineers and designers, is kept busy with the construction and maintenance of bridges of all sizes and descriptions, varying from small bridges over creeks and streams up to huge spans of 300 feet and over.

In consequence of this demand, the matter of the best designs and materials for bridge work has been particularly studied by the government experts in charge of the public construction work of the province.

Formerly, of course, all the bridges were of wood, as in the rest of this continent, and many fine examples still remain to attest the skill and ingenuity of the bridge carpenters of a generation or so ago. Such a one as is shown in Fig. 1, where wooden trusses of

play to great skill on the part of the old engineers. For the points of failure in wood construction are almost always at the joints, which must therefore be scientifically designed and properly divided with suitable fastenings of straps, bolts, etc.

The second illustration (Fig. 2) is a view taken at the other end of the long bridge (over half a mile in length) where the wooden trusses of our first picture were taken. As will be seen, a modern steel bridge is being erected on granite piers, the steel being supported during construction on a temporary platform carried on piles driven in the river bed. This picture shows the contrast between a modern granite pier and an old cribwork one.

But while steel holds the field for large bridges,

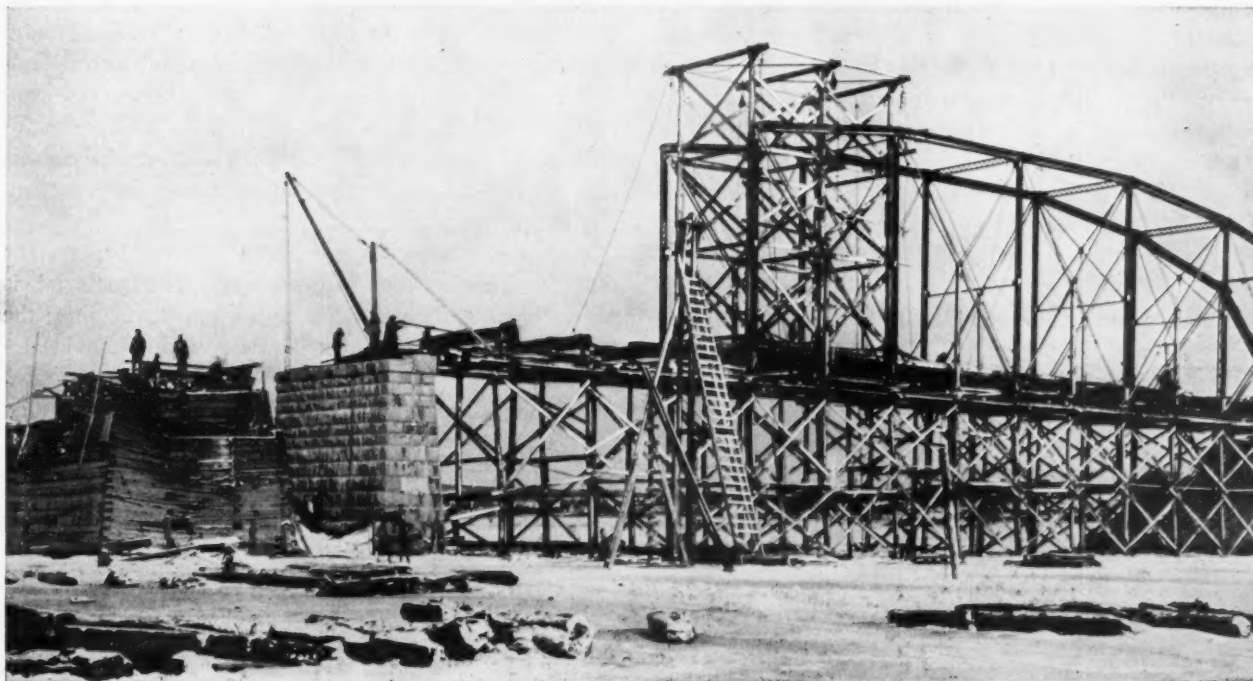


Fig. 2. Steel and Granite Replacing Wooden Spans and Crib Work

it is otherwise with those of small span. For some years after the introduction of mild steel in construction, the government engineers built all their new bridges of that material, but for several years past that policy has been abandoned and for all spans up to 180 feet wood has been resorted to once more.

A number of reasons have led to this re-adoption of wood, one of the most important being the great cost of maintenance of steel bridges. Every third year a steel bridge requires to be very thoroughly painted with a heavy coat of either the well-known carbonized coating paint, or a graphite compound.

The cost of painting a span of the size mentioned (180 feet) is from three hundred to four hundred dollars, and even then there are likely to be enclosed portions which cannot be reached and where oxidation may be doing its dangerous work in rusting and decaying some important fastening.

With the modern wooden bridge however, roofed in from end to end as shown in Fig. 3, not one penny need ever be spent on paint, with the one exception of a coat of hot tar which is given the joints as they are put together in the first place. There is little doubt also that the life of such a covered wooden



Fig. 3. Modern Wooden Bridge, Covered to Protect the Timbers

bridge will greatly exceed that of a steel one, a recent estimate by a leading designer of these structures placing the duration of the former as at least one hundred years. Of course, during that period the cedar shingles of the roof would require renewing several times; the life of cedar shingles being only about twenty-five years. The modern steel shingles will, however, undoubtedly last much longer than those of cedar, and may not require renewing more than once in a century.

Another important question is that of the up-keep of the floor of the bridge. The usual floor is composed of a planking of hemlock overlaid with a top floor of hardwood, usually birch or maple. In the case of the steel bridge, open to all weathers, it is invariably found that the hardwood upper flooring rots long

enormous. Many bridges are necessarily in remote portions of the country, away from railroads and water carriage, while the forests all about afford endless supplies of timber on the spot. If no saw mill exists within reach, a portable mill is easily obtainable, and, with the addition of a blacksmith's shop, will provide all the equipment necessary for carrying out the work.

Fig. 4 is a view of a modern wooden bridge, the trusses being of the Howe type. The material is native black spruce and southern (long leaf) pine; the flooring being of hemlock overlaid with birch as described above.

In conclusion, it may be pointed out that not only is it a matter of general interest that there is still a phase of construction in which wood is holding its

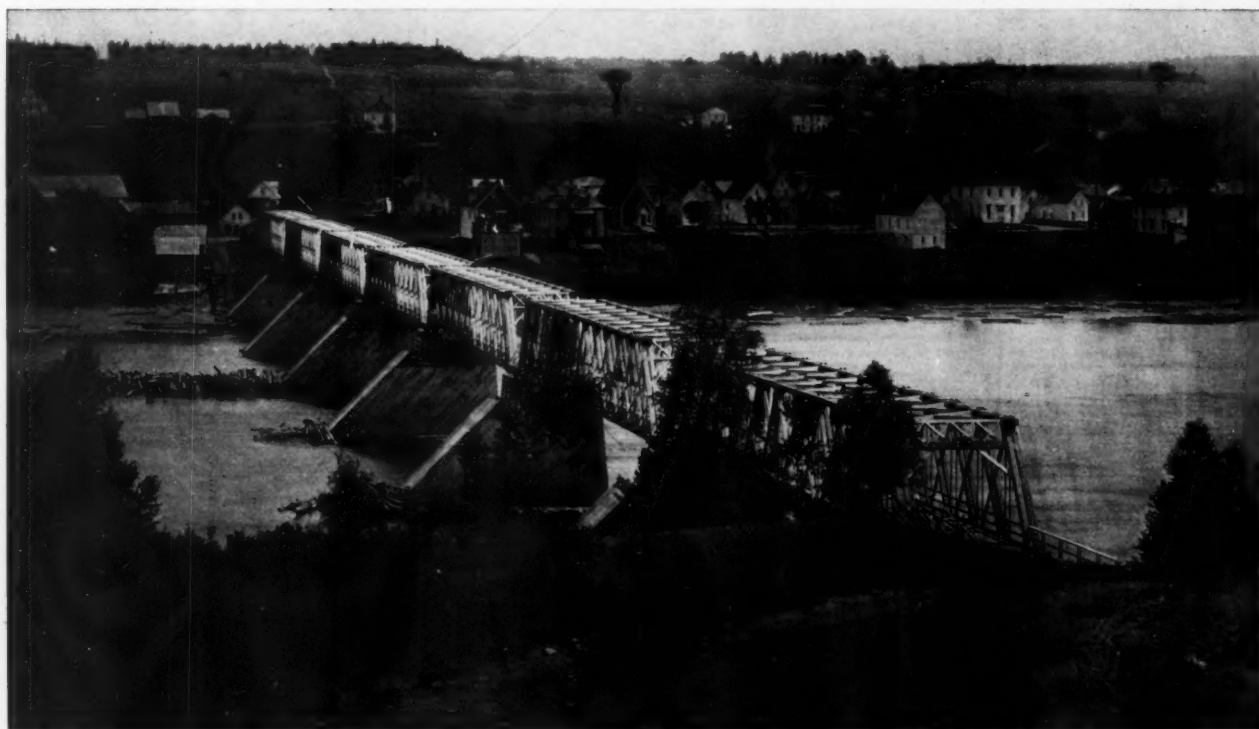


Fig. 4. Typical Modern Wooden Bridge before Being Covered

before it wears out and thus requires frequent renewal. But with the covered wooden bridge, the reverse is the case, and the hardwood flooring will wear down to the thinnest possible piece before showing any signs of rotting.

On the question of the cost of maintenance then, the evidence is all in favor of the wooden as against the steel bridge. It is scarcely open to question, also, that as regards the life of the two materials, the palm must be awarded the wooden structure, for scarcely any engineer would care to claim a life of at least a hundred years for a modern steel openwork bridge, unless it was constantly cared for.

But there is another consideration of great weight and that is that in many cases the cost of transportation of steel to the site of the structure would be

own, but it is also important that young students should not wholly neglect the study of wooden structures. For not only in some parts of North America is the experience of the government engineers of New Brunswick likely to be repeated, but in many other parts of the world similar conditions prevail. In the countries still remaining to be opened up by those advance guards of civilization, the civil engineers, the wooden bridge may bear an even more important part in the future than it has in the past.

+

His Business?

Nurse (announcing the expected)—Professor, it's a little boy.

Professor (absent-mindedly)—Well, ask him what he wants.—*Boston Transcript*.

Space Apportioned for the Cement Show

EVERY INCH OF ROOM IN THE GREAT COLISEUM AND ALSO IN THE ANNEX IS TAKEN AT THE DRAWING HELD OCTOBER 29, AND A GREAT EXHIBITION IS PROMISED

THE space drawing for the third annual Cement Show was held October 29, in the offices of the Cement Products Exhibition Company in the Commercial Bank building, Chicago. There were present representatives of most of the companies and firms that intend to exhibit. The demand for space was far in excess of that in advance of any show held heretofore and the fact presages an exposition of vast and important proportions.

There are still many unprovided with space and the effort will be made in some way to take care of them.

It will probably be necessary to make use of the second floor of the Annex at the Coliseum and also the gallery of the main building. The late comers may not be exactly suited with this arrangement in the gallery, but in the end they will realize that it will be better to be there than not in the show at all. There is no question that a building twice the size of the Coliseum could be filled with exhibits, but as none of that size is to be had the best use must be made of the largest at hand. The exhibitors who were allotted space at the meeting and their numbers are as follows:

Advance Concrete Mixer Co., Chicago...	173	DeSmet, Geo. W., Chicago.....	44	National Fireproofing Co., Chicago....	66
Alpha Portland Cement Co., Chicago....	106	Dexter Bros. Co., Boston, Mass.....	11	Northwestern Expanded Metal Co., Chi-	
American Cement Roofing Co., Columbus,		Diamond Concrete Machinery Co., Chi-	170	cago	79
Ohio	214	Dodge Manufacturing Co., Mishawaka,		Ohio Ceramic Engineering Co., Cleveland,	
American Contractor Publishing Co., Chi-		Ind.	40-41	Ohio	193-194
cago	177	Dunn & Co., W. E., Chicago.....	178	Overturf, C. W., Dumont, Iowa.....	180
American Hydraulic Stone Co., Denver,		Dunn Manufacturing Co., Pittsburg, Pa.	131	Parker Hoist and Derrick Co., Chicago..	73
Colo.	87-88-89	Engineering News, New York, N. Y....	74	Peerless Brick Machine Co., Minneapo-	
American Pulverizer Co., Chicago.....	212	Engineering Record, New York, N. Y....	69	lia, Minn.	84-85
American System of Reinforcing, Chi-		Eureka Machine Co., Lansing, Mich. 222-223		Raber & Lang Manufacturing Co., Ken-	
cago	86	Fillmore Machinery Co., Cincinnati, Ohio		dallville, Ind.	97-98
Anchor Concrete Stone Co., Rock Rapids,		Fillmore Machinery Co., Cincinnati, Ohio	144-145	Radford Publications, Chicago.....	
Iowa	169	Foots Concrete Machinery Co., Chicago		.....	102-103-104-105
Architectural Stone Co., Cincinnati, Ohio	4	Garden City Sand Co., Chicago.....	197-198	Raymond Concrete Pile Co., Chicago....	61
Arrowsmith Concrete Tool Co., Arrow-		Gauntt Manufacturing Co., F. G., Fort	70	Rock Products, Chicago.....	83
smith, Ill.	158	Wayne, Ind.	191	Ross & Co., John A., Chicago.....	132
Ashland Steel Range & Manufacturing		German-American Portland Cement Co.,		Sandusky Portland Cement Co., San-	
Co., Ashland, Ohio.....	95-96	Chicago	141	dusky, Ohio	8
Atlas Portland Cement Co., New York,		Groh Brothers, Kendallville, Ind.....	172	Sanford Concrete Machinery Co., Tole-	
N. Y.	49-50-51	Gruman Concrete Machinery Co., Zanes-		do, Ohio	133-134
Bailou Manufacturing Co., Belding,		ville, Ohio	217	Sharon Steel Hoop Co., Chicago.....	18
Mich.	17-18	Hall-Holmes Manufacturing Co., Jackson,		Simpson Cement Mold Co., Columbus,	
Barrett Manufacturing Co., Chicago.....	90	Mich.	42	Ohio	165-166
Barton System of Reinforced Concrete		Hayden Auto. Block Machine Co., Co-		Sioux City Cement Machinery Co., Sioux	
Construction, Chicago.....	117	lumbus, Ohio	204-205	City, Iowa	215-216
Besser Manufacturing Co., Alpena, Mich.		Hill Clutch Co., Cleveland, Ohio.....	39	Skillin & Richards Manufacturing Co.,	
.....	157-159	Hough Co., Wm. B., Chicago.....	111-112-113-114-115-116	Chicago	146
Bolte Manufacturing Co., Kearney, Neb.	13	Hunt, Robert W., Chicago.....	25	Smalley & Trulin, Panora, Iowa.....	179
Brown Hoisting Machinery Co., Clevel-		Hydraulic Press Manufacturing Co.,		Smith Co., T. L., Chicago.....	58-59-60
and, Ohio	28	Chicago	208-209	Snell Manufacturing Co., K. Z., South	
Cement Age Co., New York, N. Y.....	156	Hydrolithic Cement Co., Chicago.....	35	Bend, Ind.	221
Cement Era, Chicago.....	174	Ideal Concrete Machinery Co., South		Somers Bros. Manufacturing Co., Urbana,	
Cement Machinery Co., Jackson, Mich.		Bend, Ind.	29-30-31-32-33-34	Ill.	19
.....	181-182-183	Illinois Improvement and Ballast Co.,		Standard Asphalt & Rubber Co., Chicago	
Cement Record, Kansas City, Mo.....	210-211	Chicago	140	.....	92
Century Cement Machinery Co., Roches-		Inman Concrete Building Block Machine		Standard Scale and Supply Co., Chicago	
ter, N. Y.	36	Co., Beloit, Wis.	119	.....	199-200
Ceresit Waterproofing Co., Chicago.....	15	Ironite Co., Chicago.....	7	Sterling Pattern Works, Sterling, Ill....	213
Chain Belt Co., Milwaukee, Wis.....	54-55-56	Kelley Island Lime and Transport Co.,		Sterling Wheelbarrow Co., Milwaukee,	
Chase Foundry and Manufacturing Co.,		Cleveland, Ohio	81	Wis.	184
Columbus, Ohio	206-207	Kent Machine Co., Kent, Ohio.....	135-136-137	Stocker Concrete Material Washer Co.,	
Chicago Architectural Photographing Co.,		Kent Mill Co., New York, N. Y.....	175-176	Highland, Ill.	148
Chicago	162	Kerlin Auto. Post Machine Co., Delphi,		St. Paul Cement Machinery Co., St. Paul,	
Chappellau, Chas. Wm., Chicago.....	1	Ind.	201-202	Minn.	186-187-188
Chicago Cement Products Co., Chicago..	2	Knickerbocker Co., Jackson, Mich.....	37-38	Sturtevant Mill Co., Boston, Mass.....	128-129
Chicago Concrete Tool and Specialty Co.,		Koehring Machine Co., Milwaukee, Wis.		Svenson-Shuman Machine Co., Pittsburg,	
Chicago	160	.....	20-21-22-23-24	Pa.	150-151
Chicago Monolithic Construction Co.,		Kramer Automatic Tamper Co., Peoria,		Taylor Iron and Steel Co., High Bridge,	
Chicago	77-78	Ill.	220	N. J.	94
Chicago Portland Cement Co., Chicago..	81-82	Link Belt Co., Chicago.....	93	Toledo Wheelbarrow Co., Chicago.....	189-190
Clark Publishing Co., Myron C., Chicago	143	Lock Joint Pipe Co., New York, N. Y....	3	Troy Wagon Works, Troy, Ohio.....	71-72
Climax Co., Chicago.....	155	Manufacturers Record, Baltimore, Md....	130	Trussed Concrete Steel Co., Detroit,	
Clinton Wire Cloth Co., Chicago.....	147	Marblehead Lime Co., Chicago.....	6	Mich.	9-10
Corrugated Bar Co., St. Louis, Mo.....	120	Marquette Cement Manufacturing Co.,		United Cement Machinery Mfg. Co.,	
Clover Leaf Machine Co., South Bend,		Chicago	64-65	Plain City, Ohio	218-219
Ind.	47-48	Marsh Co., Chicago.....	52-53	United States Gypsum Co., Chicago....	57
Collins & Co., W. A., Chicago.....	188-139	Mateer Bros. Co., Joliet, Ill.....	152-153	U. S. Gas Machine Co., Muskegon, Mich.	224
Concrete Age, Atlanta, Ga.....	149	Mellroy Belting and Hose Co., Chicago.	14	Universal Portland Cement Co., Chicago	
Concrete Engineering, Cleveland, Ohio.	171	Meacham & Wright Co., Chicago.....	45-46	.....	99-100-101-121-122-123-124
Concrete Publishing Co., Detroit, Mich.	118	Miles Manufacturing Co., Jackson, Mich.		Van Hook, F. P., Boise, Idaho.....	192
Concrete Stone and Sand Co., Youngs-		Miracle Pressed Stone Co., Minneapolis,		Wabash Portland Cement Co., Detroit,	
town, Ohio	106-111	Minn.	62-63	Mich.	163-164
Cowham System of Portland Cement		Monolith Steel Co., Washington, D. C....	12	Waterloo Cement Machinery Corporation,	
Mills, Jackson, Mich.....	75-76	Moore & Son, W. D., Creston, Iowa....	161	Waterloo, Iowa	203
Cropp Concrete Machinery Co., Chicago		Municipal Engineering and Contracting		Williams Co., David, New York, N. Y....	185
.....	195-196	Co., Chicago	26-27	Williams Patent Crusher and Pulverizer	
Crown Point Spar Co., New York, N. Y.	5			Co., Chicago	127
D. & A. Post Mold Co., Three Rivers,				Wolverine Portland Cement Co., Cold-	
Mich.	168			water, Mich.	91
Decorators Supply Co., Chicago.....	43			Zeliser Bros., Berwick, Pa.....	142

Conventions of seven and probably more allied organizations will be held in Chicago while the show is in progress; among others are the following:

- National Association of Cement Users, Feb. 21-25.
- Am. Soc. of Engineering Contractors, Feb. 24-26.
- National Builders' Supply Association, Feb. 23-24.
- Illinois Soc. of Municipal Contractors, Feb. 24-26.
- Illinois Lumber Dealers' Association, Feb. 16-18.
- Illinois Masons' Supply Association, February 16-18.

Interstate Mantel & Tile Dealers' Association of the United States, February 15-19.

February 18-26, 1910, will undoubtedly mark the greatest congress of building material interests that has ever been held in the world. Each of the above conventions will draw a larger number of delegates than ordinarily on account of the many things of interest to be seen on this occasion. The show itself will be more representative than any held before.

Proud of "Carpenters' Building"

UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA OCCUPY THEIR NEW INTERNATIONAL HEADQUARTERS AT INDIANAPOLIS

By Frank Duffy

ON JULY 22, 1909, there was dedicated in the city of Indianapolis a building which is and should be of national interest to all carpenters and woodworkers. Since it is one of the well known traits of the trade to encourage any project and rejoice at any achievement aimed to benefit the craft or to better the lot of its workmen, I think I may very safely say that all carpenters and woodworkers wherever and however located, are as one concerning this new International Headquarters of the United Brotherhood recently dedicated at Indianapolis.

We are all proud of it!

Without going at length into detail regarding this dignified and attractive structure of brick and stone—the photographic views show it better than any words can describe anyway—I want to first recall to you some very interesting history connected with the earlier days of our craft and surrounding our earlier business home, the historic "Carpenters' Hall" of Philadelphia.

Looking back one sees an ancient organization which history knows as the "Carpenters of Dublin," to which Henry VII in 1458 granted a charter, "to exist as the Carpenters' Mechanical Guild with right to elect for a term of three years representatives to the common council of the city of Dublin, Ireland,"

And then one sees a quaint old building in Philadelphia, situated on Chestnut street, between Third and Fourth streets, known as "Carpenters' Hall." It was built in 1770, by the Carpenters' Company, a

company patterned after "The Worshipful Company of Carpenters of London, England," founded in 1477. It is of record that in this hall all the historic Colonial Congresses of America met prior to the Declaration of Independence. In it rang the eloquence of Patrick Henry, George Hancock, Randolph, the Lees, Adamases and other patriots of Colonial times. Washington,

Franklin and other confreres of the first Colonial Congress "gathered in it to counsel and advise." And this same "Carpenters' Hall" was, in 1787, made more famous by the fathers of the young republic when they selected it as the place of convention at which they formed and agreed upon a "Constitution for the United States of America."

Yes, in the storehouse of the Brotherhoods' memory are tender recollections of its former habitation, in the good old Quaker City of the Keystone state.

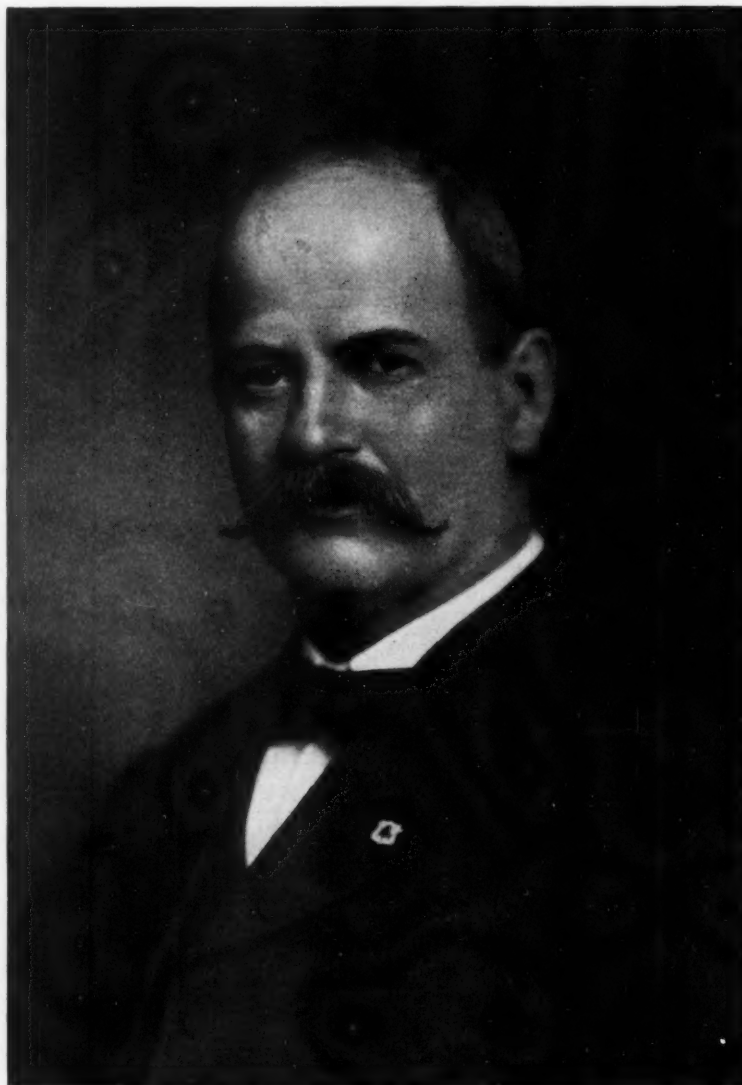
But it was written—

"Westward the course of Empire takes its way."

And following the prediction of the poet the United Brotherhood, in the fall of 1902, sought and found in the "Capital

City" of the Hoosier state an abiding place wherein to remember old friends while making new ones, friends vieing in staunchness with the old, to shape the future and to build for itself a home wholly its own, comfortable, commodious and ample for its needs.

Surely the present Brotherhood of Carpenters and Joiners may proudly trace their descent from such an historic past. May they take care to just as proudly



WILLIAM D. HUBER

General President, United Brotherhood of Carpenters and Joiners of America

see to it that this new International Headquarters at Indianapolis, the "Carpenters' Building," shall become associated with public spirited and heroic acts as was that other!

When the United Brotherhood was founded in its present form in Chicago, August 12, 1881, it had only twelve local unions and two thousand and forty-two members. Now it counts nearly two thousand local unions and over two hundred thousand members, embracing the Journeyman Carpenter and Joiner, Stair-builder, Shipjoiner, Millwright, Planing Mill Bench Hand, Cabinetmaker, Carbuilder and those engaged in running wood-working machinery, all of good moral character and competent to command standard wages. This new International building, erected at a cost of one hundred thousand dollars is a testimony to the faith of these men in their organization—a faith sufficient to make them willing to invest that amount in a permanent business home.

The building stands on the north side of East Michigan street, between Delaware and Alabama streets, and most conveniently reached by transfer or direct car service running over Massachusetts avenue. On the left of the building is seen through the foliage the dark outlines of an elegant apartment house; and on the north a clean, narrow street—Hudson—which is used by the delivery wagons as leading to the alley in the rear of the building, where all shipments are received and sent. The side view shows with striking prominence the east side and south front of the structure and the full title of the organization.

As one stands before the main entrance the eye

instinctively and irresistibly rises to the motto just above the keystone—*Labor omnia vincit*—(Labor conquers all; or Labor reigns omnipotent).

We cannot see how it is possible for any person, especially a member or a guest of the Brotherhood, to long remain outside, however; rather let us enter. In the first room will be found President William D. Huber, the warm grasp of whose hand is so well known. The next room is that of General Treasurer Neale. Directly opposite is the council room of the General Executive Board; and next to it is the room

occupied by your General Secretary. "This is my busy day," he will say, though it is extremely doubtful if there will ever be a day when he will be so busy that he cannot shake hands with members, friends and visitors, busy or not.

A view of the corridor and main stairway is given in one of the photos shown. The stairway to the left leads to the basement, the vast storeroom of the building; the facing stairway leads to the upper floors. At the north end of this corridor is the large, ample department room, the room of the clerical force, every member of which will cheerfully point out the admirable, thorough system that aids them in their work.

On July 22, this new business home was dedicated to

such "measures as will tend to perpetuate our organization, spread its principles, elevate our trade and advance our individual and collective interests to the end that the world may not look upon us as men devoid of principle, destitute of honor, worthy only of the scorn and contempt of our fellowmen."

At these dedication exercises the state of Indiana was represented by her Governor and the city by



FRANK DUFFY

General Secretary, United Brotherhood of Carpenters and Joiners of America



Detail of Main Entrance

its Mayor. From all parts of the country came men of strength and ability both of brain and brawn.

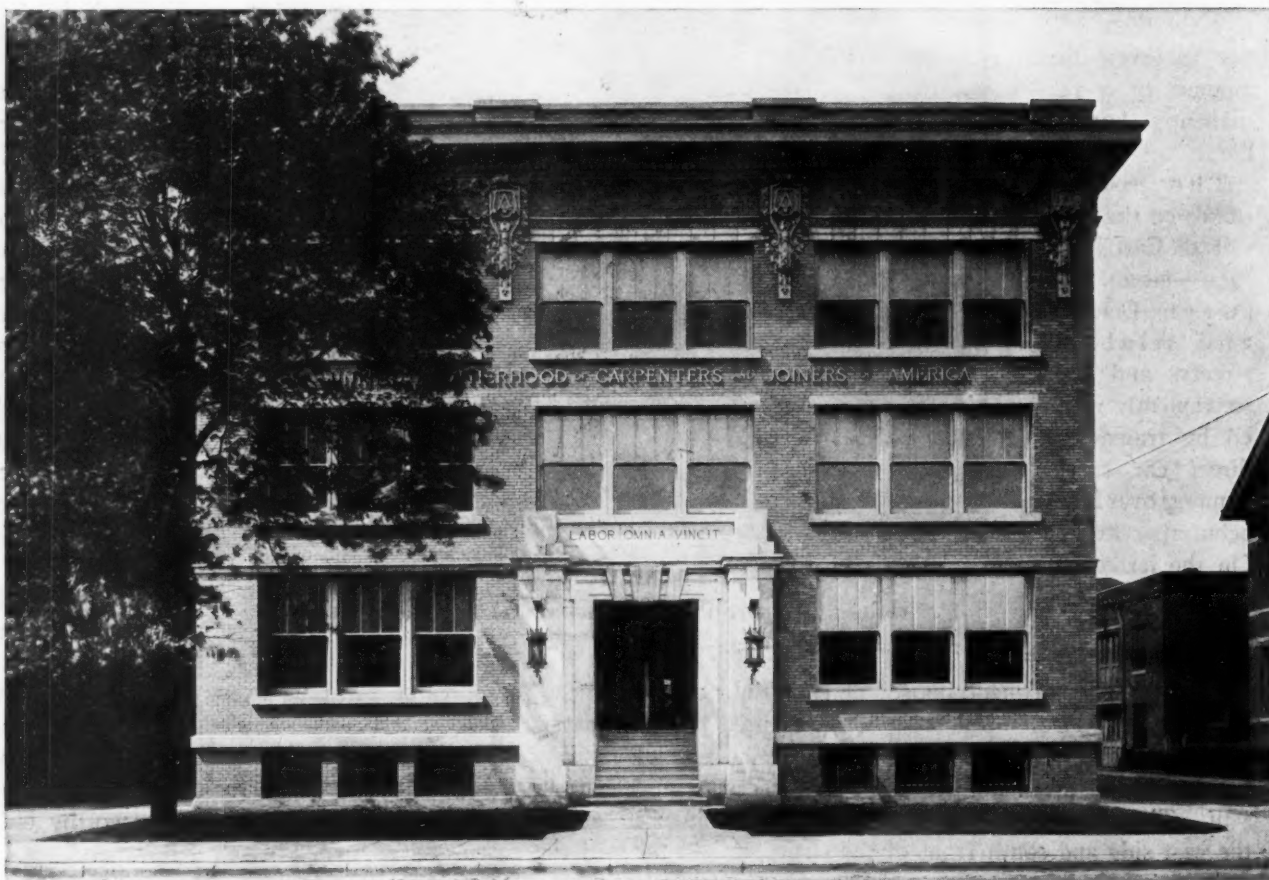
Among the multitude were many whose pens have been brave in presenting and defending the rights of the working masses and the freedom of the press and of speech. And lastly there were present the workmen, men who have passed out of their apprenticeship, learned craftsmanship and become efficient journeymen.

On that day thousands of the citizens of Indianapolis realized what the founders and builders of this organization determined should be its aim and purpose, viz.: that the laborer and his labor should be among those things which advance the civilization of the world. And in establishing this new International Headquarters they built upon the wise principle, that what is worth doing at all should be done well.

In conclusion I want to say to all carpenters, with their allied craftsmen, "Dear brothers, let us look for new joys, higher and nobler aspirations; and take courage from what has already been done and what has already been won."

Fraternally yours,

Frank Hugg
GENERAL SECRETARY



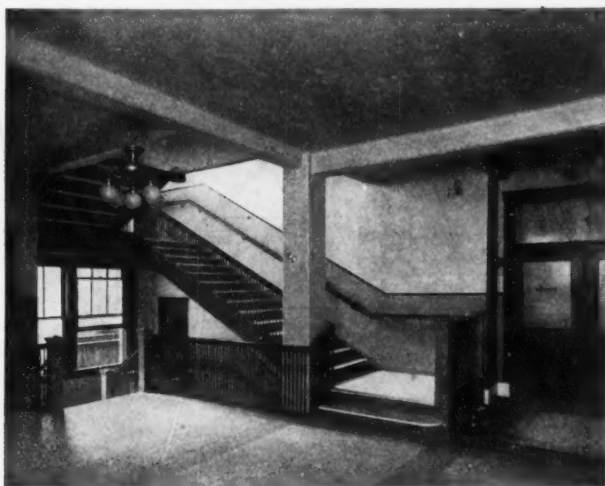
New International Headquarters of the United Brotherhood of Carpenters and Joiners of America, Indianapolis, Ind.



Side View of the "Carpenters' Building"

"Melted Wood" Commercially Valuable

Melted wood will become an article of commerce, in the opinion of scientists, because of the new qualities which the melting process gives it. It has a very fine grain, is hard and resistant and takes a high polish.



An Interior View—the Main Stairway

It takes printing ink readily and may be cleaned with potash, soda or turpentine. If preservatives are used during the melting, the wood becomes indestructible.

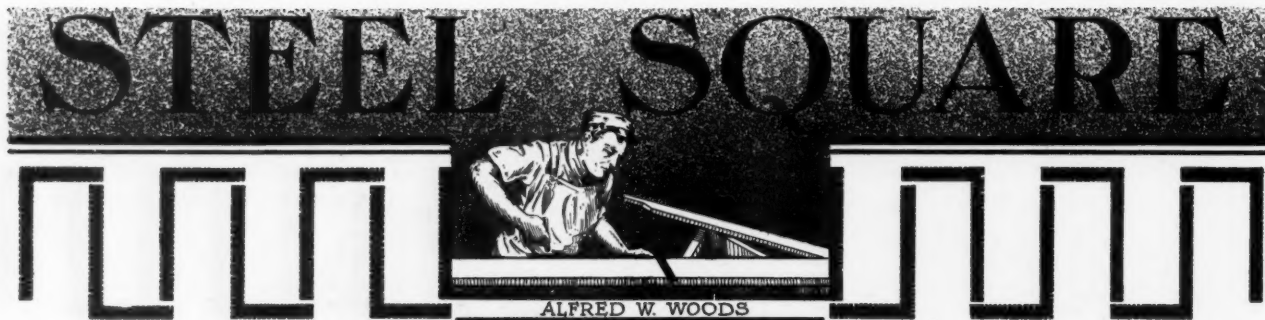
Francis Marre, writing in *La Nature*, a Parisian

publication, tells how wood is melted. A metal boiler with a double bottom is used. It is equipped with a tube and stop-cock for drawing off liquids and with apparatus for exhausting the air. The boiler is filled with small bits of wood. It is then closed with a lid, a vacuum is produced and the wood is heated to a temperature of 284 degrees Fahrenheit.

The water and other substances cooked from the wood are first drawn off through the tube and stop-cock and the heating is then continued for three hours. The result is the separation of the ingenious ingredients which are drawn off and condensed for use.

The substance now remaining in the boiler is the fibrous skeleton of the wood and the mineral salts. This mass is allowed to cool slowly without contact with the air. It is then placed in another boiler with hydrogen under a pressure of from 1.5 to 2 atmospheres and heated to 1,500 degrees Fahrenheit for two hours. This completes the melting process and the melted wood comes from the second boiler a hard, homogeneous mass.

The first experiments in melting wood were made in 1891. They were successful but the results were considered as laboratory curiosities. Later experiments, however, convinced scientists that melting wood was a process that might become of commercial value and the method described was worked out.



How to Use the Steel Square

SHOWING HOW TO FRAME IRREGULAR SHAPED ROOFS BY MEANS OF THE STEEL SQUARE—HOW TO DO THE SAME BY A SIMPLE DIAGRAM METHOD

IT SOMETIMES occurs that the carpenter is called on to frame roofs for very odd shaped buildings, which may be caused from irregular street, where the building site is limited, or where space is desired rather than architectural effect.

To run the hip lines to a common center, it will be seen, would cause as many different pitches in the roof, as there are to be sides to the building, and

of the angle. Then all of the slopes will be of the same incline, or pitch, besides making the work regular and greatly simplifying it. To do this, it is necessary to have a deck for the hips to rest against. This deck should be level and its plates should be parallel with the plates of the different sides of the building, as shown in Fig. 266. The deck in this case is located by the juncture of the hips from the shortest side of

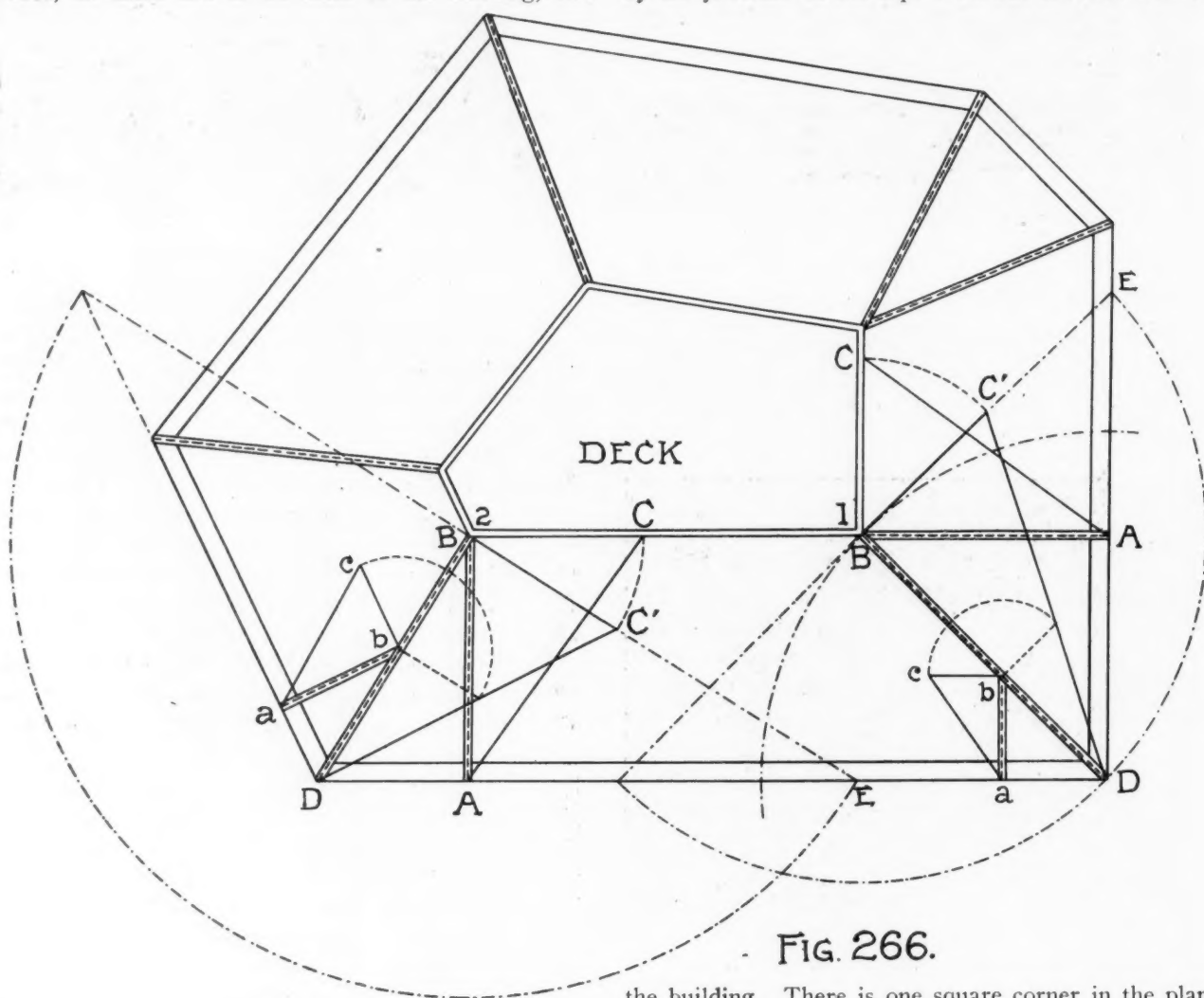


FIG. 266.

would greatly complicate the work, as well as render it unsightly. So under such circumstances, it is better to let the hips run at the bisecting or halfway point

the building. There is one square corner in the plan and it is our purpose in this article to show that the rule for framing the rafters for this corner applies to the other corners alike.

The common and jack rafters on all sides should rest at right angles or square with the plate, otherwise their backs will not lie in plane with each other.

At corner No. 1 the framing lines are shown for a square corner, such as used for any square corner for a hip roofed building. A B represents the run of common rafter, B C the rise and A C the length. This answers for the common rafter on all sides, as they are of the same pitch. B D represents the run of the hip, B C' its rise and D C' its length. a b represents the run of the jack, b c its rise and a c its length.

Now for the proportions to use on the steel square to obtain the cuts; they are as follows:

To begin with, it is understood of course that the run and rise will give the seat and plumb cuts, so we will pass that part by for the present. It is the side cuts that bother most carpenters. The jack being but a piece of a common rafter, its side cut may be found by its proportions as follows:

Take A D on one arm of the square and A C on the other—cut on A C; or the same results may be found by taking the same proportions of the jack measurements as follows:

Take a D and a C (the length of the jack) and cut on a c. For the side cut of the hip, take B E, which is in all cases at right angles to B D and in the case of the square corner is of the same length as the hip's run (B D) as will be seen in the illustration. Then the proportion to take on the steel square is B E (tangent) and D C' (length of hip) and the cut will be on the latter. As the hip must rest against the corner of the deck, it is necessary that the above so-called "side" cut be made right and left; the cut being made only to the center of the back of the hip.

Now we will take up the framing of the rafters for corner No. 2, but there is nothing more to say than has been said in the case of the square corner at No. 1. Like letters represent like parts, but of course the proportions are different. Note the difference in the length of B D and B E. In No. 1 they are equal, but see the difference in No. 2. For that reason, the hip's run and its length taken on the steel square will not give the side cut for anything but for the square corner. The reason of this is because the angle of the plates forms an angle of 90 degrees and the run of the hip when the pitches are equal must necessarily rest at 45 degrees, which is at the equalizing point of the tangents to the radius.

In this plan are shown six different corners, and while the treatment, as we have said before, is the same, it requires a diagram to first arrive at the proportions to take on the steel square, except in the regular polygonal corners, which may be memorized to work with the full scale to the foot run. However, as their use other than for the square corner is so limited it is not worth while to try to carry the figures by memory alone. The tendency among carpenters is rather to get away from figures and complicated

diagrams, the least lines shown suits them the best.

In the foregoing, and in fact most all of our work, the purpose has been to get back at the beginning; to show not only why certain figures on the steel square give correct results, but what determines the parts to use. There are, of course, more simple ways in finding or arriving at some of the cuts than by the use of the square. For instance, the side cuts for the rafters shown at the corner No. 2 can be obtained in the simple drawing as shown at Fig. 267.

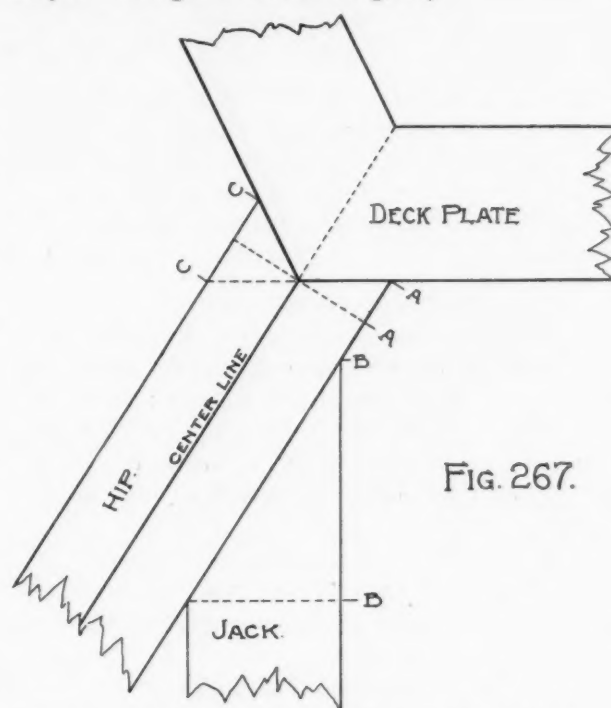


FIG. 267.

This is a plan of the corner of the deck plate showing the hip resting against same and with a jack resting against the hip. The drawing should be made the full size, or thickness of the timbers to be used in its construction. Now if there was no pitch to the roof, the cuts would be just as shown in the diagram. A to A are the distance apart that the plumb lines should be on the sides of the hips and the cut should be made into the center line, as shown, to fit against the corner of the deck. If the hip is to fit against a ridge board, then from C to C would be the distance apart the plumb lines should be. B to B represents the distance apart the plumb lines should be for the jack. This is simple enough; but as simple as it is, it is not generally understood that these measurements remain the same distance apart regardless of the pitch given the roof. All that is necessary, is to measure square back from the plumb cut for the desired pitch the distances above mentioned, carry these lines around the timber and by cutting diagonally across the back, the rafters will fit to their respective places. By this method of framing, the angles for the square corner are all on an angle of 45 degrees and the measurements at AA would be one-half the thickness of the hip and that at CC and BB would be the full thickness of the hip and jack respectively. This

is on the same principle of taking a block cut from the rafter and placing it parallel with the plumb cut, scribe off its thickness, carry the lines around the rafter and cut diagonally across.

There is another thing that is contained in Fig. 267 that we wish to call attention to and that is the backing of the hip, which may be obtained by setting

off the distance AA along the seat cut; and by removing the wood to the center of the back, it will have the proper bevel to receive the roof boards. Remember the distance from AA remains the same for any pitch given the roof for this shaped corner. It is the angle of the seat cut that regulates the gauge line on the side of the rafter.

Valuable Data for Builders

FIRST OF A SERIES OF ARTICLES—LOADS TO WHICH A STRUCTURE IS SUBJECT—DEAD, LIVE, SNOW AND WIND LOADS—PRINCIPLES OF TENSION AND COMPRESSION

By Paul T. Leshner

ONE OF the first and most important things to take into consideration in the study of building construction is the different kinds of loads a structure is liable to have. These may be divided into three classes: dead loads, live loads and the snow and wind loads.

Dead Loads on Structures

The weight of the structure itself is the dead load; for instance the weight of the roof forms a portion of the dead load on the walls and columns; the floors cause a dead load to come on the walls and columns; and then the total dead load of the structure is transferred through the walls and column footings to the supporting soil.

In order to figure this dead load we must know the average weight of the materials and the following table gives the weights of the most common building materials.

WEIGHTS OF BUILDING MATERIALS

White pine,	2½ pounds per square foot, 1 inch thick.
Hemlock,	2½ pounds per square foot, 1 inch thick.
Spruce,	2½ pounds per square foot, 1 inch thick.
Yellow Pine,	4 pounds per square foot, 1 inch thick.
Oak,	4 pounds per square foot, 1 inch thick.
Structural Steel,	0.29 pounds per cubic inch.
Cast Iron,	0.26 pounds per cubic inch.
Wrought Iron,	0.28 pounds per cubic inch.
Ordinary soil or earth,	100 pounds per cubic foot.
Brickwork in lime mortar,	120 pounds per cubic foot.
Brickwork in cement mortar,	130 pounds per cubic foot.
Stone concrete,	130 to 140 pounds per cubic foot. Best to use 140 pounds.
Compact cinder concrete,	about 100 pounds per cubic foot.
Light cinder concrete (such as is used in filling),	80 pounds per square foot.
Granite,	170 pounds per cubic foot.
Marble or limestone,	160 pounds per cubic foot.
Sandstone,	140 pounds per cubic foot.
Ordinary lath and plaster,	6 pounds per square foot of surface.

To calculate the dead load of a proposed building it is necessary first to fix upon the general arrangement, disposition and approximate dimensions of all the parts and to estimate approximately their weights. After the calculations are made and the construction detailed, the actual dead loads should be checked to make sure that they agree closely with the assumed load. If considerable variation is found, it can be taken care of by increasing or diminishing the size

already determined proportionally, as may seem necessary.

The weights of the various systems of fire-proof floors may vary from 60 pounds to 125 pounds per square foot of floor, including the necessary steel and other items used in their construction, and the weight should be justified before finished calculations are made. Generally an assumed load of 80 pounds per square foot of floor will be sufficient for the dead load. In buildings with movable partitions an allowance should be made for their weight in the dead load, if a small dead load is taken.

Live Loads

The live or accidental load for floors is a quantity for which there is no standard, as it consists of the weight of people, machinery, furniture, etc. The requirements of the building laws of Philadelphia, which are a very conservative standard to adopt, are as follows:

"Dwellings, tenant houses, apartment houses, hotels, hospitals and asylums, use a live load of 70 pounds per square foot.

"For office buildings use 100 pounds per square foot.

"For places of public assembly, light manufacturing buildings and retail stores, use 120 pounds per square foot.

"For store houses, warehouses and heavy manufacturing buildings, use 150 pounds per square foot and upwards in proportion to the loads they may have to carry."

The following data is fairly conservative and may be properly used where there are no building laws to the contrary:

The load of 70 pounds per square foot for dwellings will probably never be realized, but inasmuch as a city dwelling house is liable to be taken and used for some other purpose at any time, it is not advisable to use a lighter load. In the case of a country or seashore house or hotel, or a building of like character, where economy demands it and where the actual use of the building for a long time is certain, a live load of 40 pounds per square foot of floor is ample for practical purposes, for rooms not used for public assembly. For rooms of public assembly a live load of 80 pounds per square foot is sufficient. If the desks or chairs in a room of this character are fixed, as in

a school room, church, etc., a load of more than 40 to 50 pounds per square foot of floor will never be realized, but it is not general practice to consider this, although there are sometimes special cases where economy demands it. Office building floors have been designed for live loads ranging from 20 pounds to 150 pounds per square foot of floor. Retail stores should have floors proportioned for live loads of 100 pounds per square foot and upwards. The floors of wholesale stores, warehouses, machine shops and the like should be designed for live loads of 150 pounds per square foot and upwards. The static loads in textile factories will seldom exceed 40 pounds per square foot. In most cases a live load of 100 pounds per square foot, including the effect of moving machinery should be ample. In general, a conservative rule would be not to assume loads less than the above, but in all cases to be sure that in the actual use of the building, so far as can be foreseen, the loads do not exceed the above.

Furthermore be sure that the loads used, together with the sections used, do not give excessive deflection or vibration. In a building, stiffness or freedom from vibration is a factor almost as important as mere strength. It is also well to bear in mind that the deflection due to the dead load is permanent and that the only variable deflection is that due to the live load, and that this variable deflection is the cause of plaster cracks and the like.

The practice in the case of plastered work where a considerable deflection is harmful, is to proportion the beams or girders so that their total deflection will not exceed $1/30$ of an inch per foot of span. If the span is not more than 20 times the depth of the beam, the deflection will be within the above limit.

Wind Loads

The wind load on a roof depends upon the pitch or slope of the roof and is usually assumed to be 40 pounds per square foot, horizontal wind pressure; that is, the wind is considered as blowing at this pressure in a horizontal direction; but the resulting pressure upon the roof is always taken normal (at right angles) to the slope.

The wind pressure against a vertical plane depends on the velocity of the wind, and, as ascertained by the U. S. Signal Service at Mt. Washington, N. H., is as follows:

WIND PRESSURE		
Velocity (Miles per hour)	Pressure (Lbs. per sq. ft.)	
10.....	0.4.....	Fresh breeze.
20.....	1.6.....	Stiff breeze.
30.....	3.6.....	Strong Wind.
40.....	6.4.....	High wind.
50.....	10.0.....	Storm.
60.....	14.4.....	Violent storm.
80.....	25.6.....	Hurricane.
100.....	40.0.....	Violent hurricane.

The wind pressure upon a cylindrical surface is one-half that upon a flat surface of the same height and width.

On the assumption of 40 pounds per square foot

horizontal wind pressure, use the following for the various slopes, pressure at right angles or normal to the slope of the roof.

WIND PRESSURE FOR VARIOUS SLOPES.

Rise 4 inches per foot, use 17 pounds per square foot.
 Rise 6 inches per foot, use 24 pounds per square foot.
 Rise 8 inches per foot, use 29 pounds per square foot.
 Rise 10 inches per foot, use 33 pounds per square foot.
 Rise 12 inches per foot, use 36 pounds per square foot.
 (45 degree angle.)

Rise over 12 inches per foot, use 40 pounds per square foot.

In regard to the wind pressure against the sides of a building, use not less than 25 pounds per square foot for the tenth story, $2\frac{1}{2}$ pounds per square foot less on each preceding lower story and $2\frac{1}{2}$ pounds per square foot more for each succeeding upper story to a maximum of 35 pounds at the 14th story and above.

Snow Loads

The snow load on a roof is generally taken at about 12 pounds per square foot of roof (horizontal area covered) when the slope of the roof is under 12 inches rise per foot of horizontal run, but when the slope is over 12 inches rise per foot, a load of 8 pounds per square foot is considered ample. By "horizontal area covered" we mean the span of the truss multiplied by the distance apart of the trusses.

Tension and Compression

When the forces which act upon a body are exerted in directions away from each other, tending to elongate

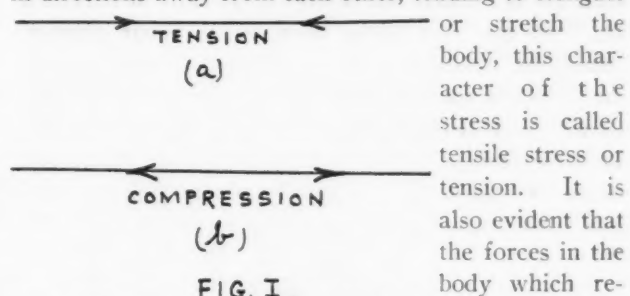


FIG. I.

tension must act inward or towards each other, as indicated by the arrow-heads upon the line denoting tension in Fig. 1a.

When the direction of the forces which act upon a body act toward each other, their combined action tends to shorten or compress the body; this character of stress is called a compressive stress, or compression. It is evident that the forces of the body which resist compression must act outwards or away from each other, as indicated by the arrow heads upon the line which denotes compression in Fig. 1b.

The ultimate strength of any material is that unit stress which is just sufficient to break it.

ULTIMATE TENSILE STRENGTH OF MATERIALS.

White Pine, 6,000 pounds per square inch of cross section.
 Hemlock, 4,000 pounds per square inch of cross section.
 Spruce, 6,000 pounds per square inch of cross section.
 Yellow Pine, 8,000 pounds per square inch of cross section.
 Oak, 10,000 pounds per square inch of cross section.
 Wrought Iron, 52,000 pounds per square inch of cross section. (Rods or bars of unusual size.)

Rolled structural steel, 64,000 pounds per square inch of cross section.

Cast Iron, 18,000 pounds per square inch of cross section.

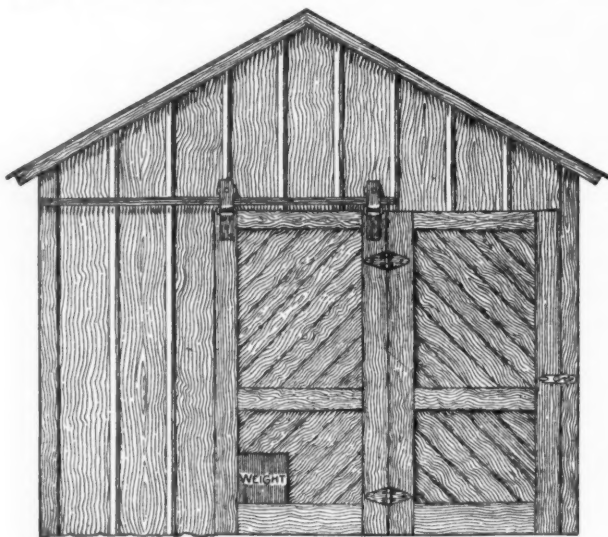
For timber, steel and wrought iron, use a factor of safety of four and for cast iron a factor of safety of six. Thus to get the safe working value for a certain material, we divide the ultimate value by the factor of safety.

The following cement values are the least that should be allowed for a first class cement of Portland grade:

Neat Portland cement, 1 day in air, 6 days in water, 450 pounds per square inch of cross section. Portland cement and sand in a portion of 1 to 3, 1 day in air, 6 days in water, 160 pounds per square inch of cross section. Between the first class Portland cement and ordinary lime mortar, there are a number of grades. Their adaptability will depend upon the special requirements of each case. In general, the cements may be divided into three classes: Portland, or artificially made cement; Rosendale, or natural cement, and Union which is a mixture of Portland and natural cements.

Ingenious Door Arrangement for Small Garage

A small garage that is only large enough to house an automobile must have a door almost as large as one end of the building. Frequently it is desired to hang such a door on rollers, but the width of the small garage would not allow for a track of sufficient length to hang an 8-foot door in the usual manner. Instead of having one large door, two 4-foot doors can be made and hinged together as shown in the sketch. One of these doors is fitted with rollers which run on a short track. The hinged door is opened and folded over the first door and then both of them rolled back over a 4-foot space.

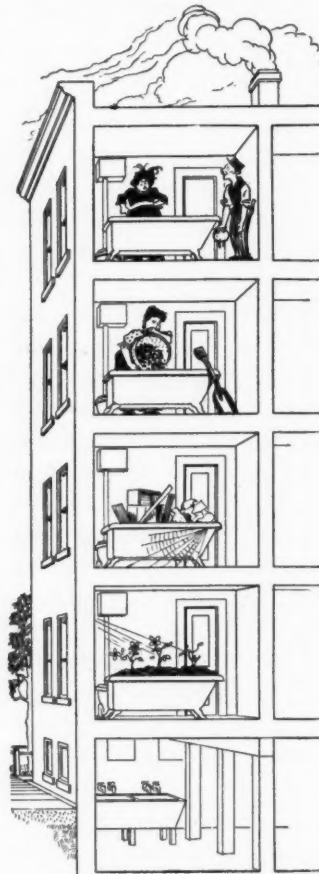


Arrangement for a Wide Sliding Door for a Small Garage

A 50-pound weight is fastened in the lower left-hand panel of the door hung on the rollers to counterbalance the weight of the door hung on the hinges. A hook placed in the cement floor on the inside of the doors at the center secures them when they are closed.

Misuse of Bathtubs in Tenements

In many cities serious efforts have been made to improve living conditions in tenement houses, especially as concerns sanitation and cleanliness, but, according to *Popular Mechanics*, results are often so disheartening as to make model tenement owners wonder "what's the use."



Utilizing Waste Space in Tenements!

These illustrations show some of the means in which bathtubs in many tenement houses are misused and abused. Many optimists insist that it results from the fact that the tenants do not know what a bathtub is for and that they will soon learn to appreciate its presence, but the reason for the misuse in many cases is due to the fact that the setting aside of valuable space which would only be used perhaps once a month for the

purpose it was provided for is considered wasteful. Consequently, some bathtubs are used as receptacles for coal and other fuels, as a convenient place into which to throw rubbish, and sometimes, when the bathroom window is in a position to admit the sun, is filled with dirt and attempts are made to grow small vegetables or flowers.

Waiting at the Church

A young man lived at some distance from his bride-elect. On the eventful day he set off for the station in good time, but, being delayed by friends, he missed his train. Then he bethought himself of the telegraph. "Don't marry till I come—William!" was the message he wired.

What Every Journalist Knows

Nice Old Lady: "Will you kindly tell me if the lady who writes 'The Mother Page' every week in your paper is in? I want to tell her how much I have enjoyed reading her articles on 'The Evening Hour in the Nursery.'"

Office Boy: "That's him over there with the pink shirt, smokin' a pipe."

Hot Water Supply for Kitchen and Bath

SATISFACTORY HOT WATER INSTALLATION AS AN INVESTMENT FOR THE REAL ESTATE OPERATOR
PUTTING UP FLATS OR HOUSES FOR SALE OR RENTING

By Aaron Bodenwelder

WITH all the rapid progress of the present age, many of us, although more or less enthusiastic in our efforts, seem very apt to overlook some very important features; I refer particularly to contractors and builders and building operators at this time, and my object of discussion will pertain to water heating appliances only.

Having had wide experience as a builder, also as a real estate operator—buying, selling, renting, etc.—the writer has found that the tenant, or prospective buyer of today, is particularly interested in the *hot water supply*. In fact, that is about the first and principle thing he wants to know about when he is buying or renting a dwelling place. It may be added also that the failure of a good and sufficient hot water supply in the home, or flat, as it may be, causes the landlord more trouble than any other one feature connected therewith.

Fortunately, in the last few years, there have been devices and arrangements perfected which have proven conclusively that shortage or uncertainty in the hot water supply need no longer exist; and the operator of today, in order to make a success of his undertakings, should familiarize himself with all devices of such description.

In regard to city apartment houses different people have different views. In my experience, I find that where the owner or landlord is desirous of furnishing hot water to all his tenants he very often has a great deal of difficulty, for the following reasons: You will find that in most flat buildings where there are a number of tenants, there will be some who are more or less reckless and void of good judgment. These tenants will use, or rather waste, quantities of hot water. This causes the balance of the tenants to run short on their supply when actually in need of same. This condition causes a general dissatisfaction.

I have found that the most practical way of operating a flat building—just as with a detached home—is to equip each apartment with a high-grade water heater and let each tenant furnish and regulate his own supply of hot water. This can be done by specifying or installing the proper device, in each kitchen if a flat, and if a self-contained residence, in the basement.

Now, there are hundreds of devices constructed for the purpose of heating water; there are however, but few of this quantity that are truly serviceable and that will please the tenant. Here is where the building operator should be discreet and cautious in making his selection, and should see that a device is installed that will insure the tenant the greatest efficiency and the least trouble to operate. As a matter of fact, most any device will operate when brand new, just as any

new piano will sound well as long as it is new, but after having been in constant operation for six months or a year, it begins to display its cheapness and defects in general; so it is with a water heater.

I have, on a number of occasions, met various builders and operators, and have put the question to them, as to their hot water supply, and they often reply: "Oh, we don't care what becomes of the tenant or householder, we are putting up this building for a speculation; what we want is to make money out of this." To which I have replied: "If you are a good speculator, you cannot make a better investment or show prospective tenants or buyers a more enticing feature than to assure them of a good and sufficient hot water supply, in that particular dwelling. For after you have spent \$15.00 or \$20.00 along this particular line, it is an easy matter to draw down three times the amount of this particular feature, when making the sale.

"When people leave your office and say they will call again and do not return or make a purchase, you pay no attention to it. Consequently you allow yourself to get into a rut. In many cases, if you will follow up your prospect, you will find that he will come back and tell you some truths and facts, as to why he did not purchase. I think you will agree that it is well in many cases—although oftentimes painful—to stare facts in the face, to have people tell us the truth. This, in my opinion, is the only way we can determine and really learn the 'whys' and 'wherefores'!"

Building, operating and renting today is like any other commercial line or merchandising. The prospective tenant or purchaser is looking for the best he can get for the money. It is up to the contracting builders to see that he gets it. A thoroughly satisfactory hot water supply you will find—such at any rate has been my experience—is a greater drawing feature than is a hardwood floor or a tile fireplace. While these features look well, after all they do not give the occupant what he most needs and must necessarily have, namely, hot water.

+

Wigg—What kind of cigars does Closefist smoke?

Wagg—Well, when you light one of them you instinctively look around for the corned beef.

+

Told in Denmark

Returned Explorer—Yes, the cold was so intense at the pole we had to be very careful not to pet our dogs.

Miss Youngthing—Indeed! Why was that?

Returned Explorer—You see, their tails were frozen stiff, and if they wagged them they would break off.

Heat—When and Where You Want It

HOW YOUR STEAM OR HOT WATER HEATING SYSTEM MAY BE ARRANGED TO GIVE HEAT AT THE RADIATOR WHEN THE FURNACE FIRE IS LOW OR OUT

IN SPITE of the delight and satisfaction of having his residence equipped with a modern heating plant, almost every home owner has had his times of forlorn despondency over the very size and completeness of his heating system. In the first snappy days of fall, before the furnace fire has been started, he is apt to wonder peevishly,—what's the good of a steam plant without any steam; or a hot-water system that isn't going; or a furnace without any fire in it! And in the spring, again, his feelings are the same when Old Winter comes romping back for a little

nace, steam or water-heating plant can not deliver heat just when and where you want it—except uniformly and in large quantities. Some extra provision has to be made for heating portions of the house locally if it is to be perfectly comfortable at all times.

Some local system of heating of this nature, if it could be successfully arranged, would also be greatly appreciated at times in mid-winter weather. Who, getting up of a cold winter's morning, has not wished with chattering teeth for some source of warmth closer than the basement!



A San Francisco Apartment Heated with a Gas Heated Steam Radiator Used Independently

visit after the fires are all banked for the summer and the screens put up!

He knows that his big furnace, if brought into action, would be too much of a good thing entirely—would shortly have them all out in the street with the windows open (not to mention the expense of starting her up)!

And yet *some* heat is needed; for *certain portions* of the house are decidedly cold and clammy.

This condition has for years presented a real problem to house fathers and has been the cause of much concern because of the ever-present danger of colds. The truth of the matter is that the ordinary large fur-

It is the purpose of this article to describe very briefly a system, recently perfected, which, used either independently or as part of an ordinary steam or water system, seems to be just exactly what is needed along this line. A steam or water radiator is equipped underneath with a gas burning heater. A match is all the kindling required; the volume of water stores up and retains the heat; and an automatic device, or "janitor" turns down the flame when the required degree of heat has been reached.

Fig. 1 shows a typical installation using one of these gas-heated radiators as part of a regular steam-heating system. For this steam radiator, B, an automatic

regulator controls the supply of gas, reducing it as soon as a few pounds steam pressure is raised. The pressure of steam on the diaphragm reduces the flow of gas to the radiator, hence its great economy in the

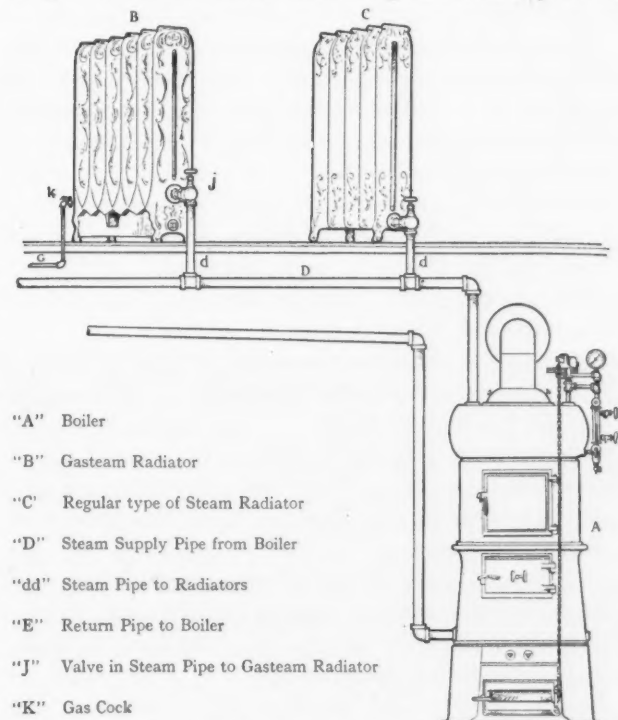


Fig. 1. Gas Heated Radiator as Part of a Regular Steam Heating System

use of fuel. A gauge indicates the amount of water in the water chamber. When it is desired to use gas for fuel turn off radiator valve tightly; fill radiator with water until gauge shows one-half full, then apply match to the burner and in a short time you are enjoying steam heat without coal. The radiator is equipped with an automatic air valve, which closes as soon as the radiator is filled with steam.

This steam radiator is assembled in sections from four to fifteen, the size of the radiator depending upon the size of the room to be heated, and is manufactured in the following heights:

2-column, 37 inches high by 8 inches wide.

6-column, 20 inches high by $12\frac{3}{4}$ inches wide, without flue.

6-column, 20 inches high by $12\frac{3}{4}$ inches wide, with flue for natural gas.

With artificial gas any gas-heated radiator is odorless, and does not require a flue. In some sections of the country the natural gas is of such a quality that no flue is required, but in other sections a flue is required. The 6-column radiator, on account of its height, can be used under a window or set in a mantel in place of a gas log or grate.

The following are the rules for figuring this kind of radiation:

Allow 1 sq. ft. of radiation for 2 sq. ft. of glass.

Allow 1 sq. ft. of radiation for 20 sq. ft. of exposed wall.

Allow 1 sq. ft. of radiation for 200 cu. ft. contents.

The sum of these amounts would represent the number of feet of heating surface it would require for steam. This is based on inside temperature of 70 degrees.

Connection to the furnace boiler system is made by removing the plug from right hand side of radiator and connecting the radiator with pipe line to boiler. Thus when part of the radiators in a steam system are of the gas heated type they can be used the same as other radiators during cold weather. In moderate weather, such as fall and spring, the gas attachment can be used to kill the chill, for it does not pay to keep up a fire in the boiler for a little heat night and morning.

Fig. 2 shows a system consisting of two water radiators, gas heated, entirely independent of boiler or expansion tank. This water radiator resembles the steam radiator in outward appearance. It does not require a water gauge as it is connected to the water supply system of the building. A key air valve is used instead of an automatic valve, because a hot-water system does not become air bound like a steam system. A thermostat regulated by the temperature of the water controls the gas supply, reducing it as soon as the water reaches a temperature of 190 degrees.

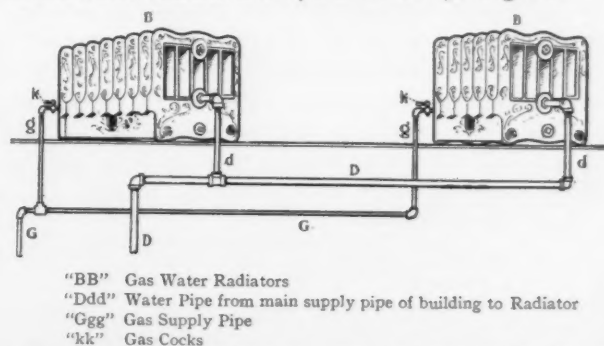


Fig. 2. Showing Method of connecting one or more Gas Heated Water Radiators to a water main entirely independent of a boiler or an expansion tank. Gas only for fuel.

This gas-heated water radiator can be installed in three different ways; independent of boiler or expansion tank—gas only for fuel, Fig. 2; independent of boiler but connected to an expansion tank—gas only for fuel; and as part of a hot-water heating system with boiler in basement—gas or coal for fuel.

In figuring hot water radiation the rule previously given should be followed, adding 50 per cent to the number of feet of heating surface required for steam.

Both the gas-heated steam and water radiators, although decidedly new, have been already tested and used successfully for the heating of individual rooms and for whole houses in the mild climates, such as California and the south; these in addition to the uses first mentioned. Wherever equipped with them you can have steam or hot water heat in twenty minutes; and at very low expense—a little over one cent an hour, for example, for a seven-section radiator. And you turn off even this small expense the moment you turn off the heat.

A Solution of the Water Problem

HOW TO SUPPLY THE COUNTRY OR VILLAGE HOME WITH FRESH RUNNING WATER FOR ALL USES WITHOUT RESORT TO WATER STORAGE

By Herbert J. Day

STRANGE, isn't it, that in a world full of electrical wonders, a world full of marvelous attainments in intricate machinery, in a world that contains such beautifully designed and wonderfully appointed homes—strange, isn't it, that people have advanced no further in the problem of supplying those homes with water than to store it away for future use, just as did their most remote ancestors?

Yet that is exactly what they are doing, to a great extent today.

The receptacle has been improved, to be sure; a copious tank takes the place of the primitive water urn—or whatever it was that held the reserve supply—and the water is conducted through pipes to obviate the necessity of going after it.

By elevating this tank, gravity takes a hand in delivering the water, supplying the home with a pressure proportionate to the height of the tank above the faucets.

Another method—a later development—is to use an air-tight tank, burying it in the ground, or placing it in the cellar of the house. In this case water is forced into the tank compressing the volume of air to a degree sufficient to drive the water up to the fixtures.

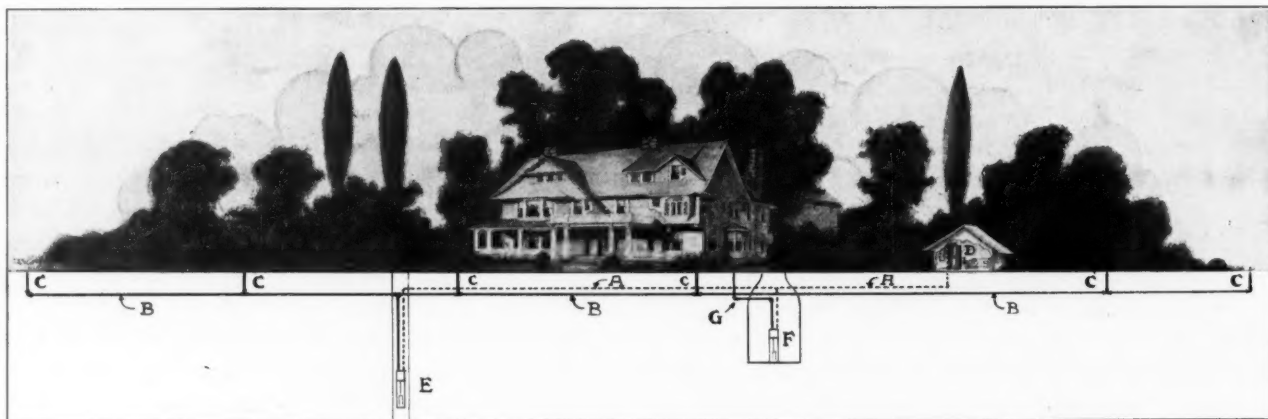
This method has the decided advantage of being frost proof, and it is a great improvement over the outdoor elevated tank that is exposed to extremes of climatic conditions.

But, notwithstanding the fact that the service is

Here would be the realization of her fondest dreams. How often has she envied her city cousin, who simply turns a faucet and gets water in almost wasteful abundance. Of course, the city water is "not like she gets from the well on the farm." It never is, and that is the one saving grace that reconciles her—almost. Perfection would be a combination of city service and country water—water that is ever ready at the turn of the faucet, and always as fresh as if just sipped from the old oaken bucket.

It was not until quite recently that the problem of *fresh water* was satisfactorily solved. It remained for Mr. Thomas O. Perry, a Chicago inventor of note, to bring forth a pneumatic pump that would operate directly at the source of supply and maintain a pressure of water at the faucets without recourse to the storage reservoir.

This pump is operated by compressed air in a manner somewhat similar to pneumatic riveting machines, pneumatic railroad switches and like devices, except that instead of employing a piston as do these, the air acts directly upon the water in the cylinders, without the use of a plunger of any kind. The pump consists of two cylinders, with a mechanism to alternately shift the air through a rotating valve, from one to the other. The pump is submerged in the water to a depth sufficient to give the proper "head" for the cylinders to fill by gravity—usually 3 to 6 feet. While one cylinder is being discharged by the compressed



Installation of Pneumatic Water System in a Country Home

A.—Compressed Air Pipe. B.—Water Supply Pipe. C.—Water to Faucets and Sprinklers. D.—Air Compressing Outfit. E.—Pneumatic Pump in Well. F.—Pneumatic Pump in Cistern. G.—Cistern Water to House.

very satisfactory, it would seem that the ideal method would be one that entirely obviated the storage of water. Imagine the farmer's wife who has been used to carrying the water from the well by the bucketful—or pleading with John to do it—or the more fortunate and much envied one who has a pump in her kitchen—picture their going to the kitchen sink or a neat lavatory and drawing water direct from the well.

air, the other, from which the rotating valve cuts off the air, is filling. When the first cylinder is nearly emptied the valve is automatically reversed, cutting off the air and opening an exhaust, allowing it to refill, at the same time turning the full force of air on the other cylinder. The water is driven directly into the water main.

In effect, there is simply an air pipe from the air

compressing outfit, leading to the well and forcing the water through the mains to the faucets—the pump acting as a valve to allow water to enter the pipe without losing air.

While the pressure of air behind the column of water is constant, the air is used only when water is drawn. When all outlets are closed the pump does not operate, though the pressure is maintained throughout the system at all times. The reservoir is provided in order that a reserve of power—compressed air—may be stored. The reservoir is usually charged to considerable more pressure than is needed to raise the water, the pressure being reduced to the proper tension before it enters the pump. The excess of pressure furnishes a storage of power, the compressor operating occasionally to renew the charge of air. In some cases sufficient storage of air is provided to last from one to two weeks.

In point of practicability the pneumatic system has many excellent features. The air-compressing outfit which may be operated by any available power, may be located at any convenient place, regardless of distance from the source of supply. The source of supply may be a lake, spring, cistern, well or whatever conditions offer.

Any well, however small, may be used, as it only

requires the additional piping to bring the water to the surface by compressed air, employing what is known as the air lift. The pneumatic pump in this case is placed in a small receptacle at the top of the well, from which point it delivers the water through the mains. No extra machinery is needed, except a small device for automatically regulating the flow of water into this receptacle or intake.

As to the efficiency of this system it will suffice to say that an air reservoir of 500 gallons capacity, charged to a pressure of 60 lbs. and raising water to a height of 30 feet, will deliver 828 gallons of water.

Another feature is the "elasticity" of such a system. Should it be desired at any time to double its capacity, one needs but add a pneumatic pump with proper pipe connections and use air from the same compressing outfit. Or, if soft water is required, simply place a pump in the cistern, teeing off the main air line for power, and pipe the soft water to the house. Air may be piped any distance, so the compressing outfit need not necessarily be near the source of supply.

The many advantages of this system are worthy of more than casual notice. The entire system can be made automatic, needing no attention other than occasional oiling of the air compressing apparatus. It is easily installed by any mechanically inclined person.

Practical Acetylene Illumination

By A. Cressy Morrison

THE extraordinary development of the acetylene industry, presenting as it does a practical means of illumination for country homes, detached buildings, hotels, sanitariums, institutions and the American farm home, demands the careful attention of the carpenter and builder, no matter where located. Sooner or later he will be called upon to meet the requirements of this system of illumination, and while it is true that the application of acetylene has been largely out of the cities, it is now being rapidly introduced in the manufacturing establishments everywhere for the purpose of autogenous welding; that is, the welding of two pieces of the same metal by literally melting the edges together. Every boiler shop, repair works, iron foundry, steel foundry, railroad shop and in fact every metal working establishment will ultimately be using this extraordinary process by which the most intense heat in chemistry is concentrated in a pencil point.

The necessary structures and provisions for this new subsidiary industry must be provided by the carpenter and builder. Conditions in this field are, however, so very different in each establishment that no fixed method of procedure has yet developed. In the lighting of detached buildings, however, the methods have been so fully worked out that a description general in its terms will probably apply in most instances.

The basis of acetylene illumination is calcium car-

bide. This is a rock like substance produced by literally melting lime and coke in the electric furnace, whereupon they combine chemically, forming calcium carbide. This substance, having been subjected to a temperature of 6,000 degrees Fahrenheit is thereafter totally unaffected by any temperature or by chemical reagents, except only water. The moment it comes in touch with water a chemical change takes place by which the carbide is transformed into lime and the carbon joins the hydrogen of the water and forms an extremely rich gas called acetylene.

In the utilization of this gas regular gas piping is used throughout the house, differing only in the fact that the pipes may be smaller than for ordinary city gas and that the burners are especially designed to handle this extremely rich illuminant. As the methods of ordinary piping are so well understood, description is of course unnecessary, but to those unfamiliar with the subject it may be well to state that ordinary gas burners will not do. The special acetylene burner burns but one-tenth as much gas as the ordinary city gas burner but gives, nevertheless, an equal amount of light. Its structure is also peculiar and must necessarily be of a special nature to prevent carbonization and what are known as burner troubles. As, however, an acetylene burner is to be had anywhere, it is only necessary to state the fact that they must be used, as other burners will not do.

Eliminating the piping from the discussion, the question of the utilization of acetylene in any structure reduces itself, from the standpoint of the carpenter and builder, to the proper housing or placing of the acetylene generator. The acetylene generator is a mechanical device by which the carbide is dropped automatically into a body of water and the resulting gas transferred to a movable bell from which it is piped throughout the building. This generator varies in capacity and dimensions in accordance with the requirements of the case. Each manufacturer of generators having developed his own ideas, the dimensions differ, but usually they are constructed so that they will go into an ordinary cellar or basement with enough head room for operation and allowance of a few inches for a platform on which the generator can be placed. There are two methods of placing generators; one is an outside installation, in which case the generator is placed in an out building or in a special structure built for the purpose and no special requirements are necessary for this structure, aside from the fact that it should be made as proof against cold as possible. The necessity for this arises from the fact that the water in the generator and in the gas bell container is liable to freeze and stop the operation of the machine. This brings in complications which must be absolutely guarded against.

When an acetylene generator is placed in a basement, it must be placed in accordance with the insurance regulations and should be at the point farthest removed from the furnace or any artificial light. It should be placed upon a stout platform, four or five inches above the floor of the basement and head room for operation should be provided. If it is possible to place the generator where the light from the basement window will fall upon it, it is desirable as no artificial light should be used when the generator is being charged with carbide or the residue removed.

When installed in accordance with the insurance regulations, the acetylene generator is probably the safest source of illumination which can be selected; in fact, the Board of Engineers of the National Board of Fire Underwriters, after a year's exhaustive investigation, declared it was safer than the illuminants which it replaces. This factor is going far to stimulate the rapid introduction of acetylene generators throughout the country.

There is, however, an additional feature which is aiding materially in the advancement of the acetylene industry, and that is the fact that the recharging of the generator requires but half an hour's work once a month, whereas other illuminants, especially where lamps are used, require almost as much work each day. By the use of electric ignition, which is now practically and economically available, the use of matches is avoided. This removes from the household one of its greatest sources of danger.

With the exception of New England, where special

regulations are still enforced, the acetylene generator may be placed inside of insured premises by securing a permit from the insurance company, for which, however, no charge is made.

It is well also to provide a place for the storage of calcium carbide which shall be dry and removed from possible danger of a flooded cellar or any other accident which would bring water into contact with the carbide. The carbide comes packed in air-tight and water-tight drums and the suggestion given above is merely reasonable caution against any possible combination of neglect or foolishness.

The operation of the generator is extremely simple in principle, though the insurance requirements, born of expert engineering experience, have made the mechanism of the generator an unusually well developed mechanical device. The carbide drops in a very small quantity into the water, a considerable volume of gas is produced, the gas raises the bell immediately and the bell shuts off the supply of carbide until sufficient gas has been drawn from the bell to lower it to the point of operation again.

The charge of carbide varies with the capacity of the machine from twenty pounds to two hundred pounds. The amount of gas given off by a single pound of carbide is five cubic feet. Five cubic feet of gas will last for ten hours in a half-foot burner which yields as large a light as a five-foot burner burning city gas. The light is soft and brilliant and is the nearest approach to sunlight of any of the artificial illuminants. The industry has reached a point where the carbide, the mechanism for transforming it into gas, methods of piping and the burner have reached mechanical perfection and the astonishing fact that over 150,000 buildings and 315 towns are illuminated by acetylene in the United States alone and that these are increasing remarkably, demonstrates the fact that the light has come to stay, that it is acceptable and that as the installation is extremely simple and not expensive, the carpenter and builder are safe in recommending it.

Acetylene is used for lighting small towns, and in this case a structure called a generator house must be provided. Its dimensions and peculiarities depend entirely upon local conditions and undoubtedly will be specified by the contractor who builds the gas plant itself. Therefore, no description of this structure is needed at this time.



Panama Canal Half Excavated

The grand total of canal excavation down to the first week of October was 87,494,537 cubic yards, just one-half of the total excavation to be made for its completion. Of this great amount 64,738,051 cubic yards was excavated since January 1, 1908, as compared with the 22,756,486 cubic yards excavated in the four previous years of American possession.

Gasoline Lighting for Country Homes

THE USE AND ADVANTAGES OF THIS MODERN SYSTEM OF ILLUMINATION—HOW IT IS OPERATED—
APPROXIMATE COST

TEN years ago it was customary for the man who was showing his country home to his friend from the city to say apologetically, "Of course, we haven't the conveniences here that you have in the city, but then, you can't expect to have everything you want when you live so far away from the city."

But of late years modern progress and invention has given more serious attention to the home in the small town and in the country, and there is also a growing disposition on the part of the man who dwells "far from the madding crowd" to insist on just as much comfort as his city brother.

It is now no uncommon occurrence to find a country home equipped with bathrooms, hot and cold running water, and lighting gas piped into every room in the house.

In this latter particular, country homes have felt the greatest need. Sociability and comfort after night fall calls for clear brilliant light and plenty of it, and the idea that the country was a dull place originated probably by the sight of a family sitting around a dingy, smoky kerosene lamp, trying to peer through the gloom, and pass the evening reading or playing games by its imperfect light.

There are several forms of relief now offered the suburban or rural home, and among the best of these are the gasoline lighting outfits, which give the home what is actually a gas plant of its own right on the premises. One of these ingenious inventions can be set up in a corner of the basement or cellar, and requires little or no attention at all.

It supplies a gas that is perfect to the different rooms of the house, just like city coal gas, and like city gas, it can be used equally well for both heating and lighting, and the light produced is clear, white and brilliant. The gas is ready to turn on and light at any time. No generation required.

The fuel used is gasoline, stored in a carburetor outside of the house, and buried in the ground. In most cases it need be filled with fuel about once every six months, and needs no other attention. The principal parts of the machine in the basement are a pump, which works with a weight, and is wound up in a few minutes every few days, and an automatic mixing regulator, which needs no attention whatever.

This latter feature is found only in the most modern machines, and is deserving of a little special mention. Without it, lights from gasoline gas are liable to change and vary, depending on the age and quality of the fuel, but with this ingenious device the gasoline vapor is mixed and automatically held in correct proportion, which is 15 per cent vapor to 85 per cent air. The result is a clear, white light that does not smoke or fill up the room with noxious odors.

Experience has shown that gas can be produced by

this method at a cost not to exceed one dollar per thousand feet, which will make the cost of light at an 80-candlepower burner figure about one-fourth of a cent per hour. This is very low, indeed, and few city dwellers can buy their light any cheaper than this.

These machines are made in various sizes, and can be used to light the home, or to light entire villages and communities on a co-operative basis. They are to be classed as among the most beneficial inventions produced today for the rural home.



Reinforcing the Gatun Locks

"The mere mass of the concrete floor and side walls of the locks at Gatun will be sufficient to give them great stability," says The Scientific American, "but, with a view to adding a further safeguard against rupture in the event, say, of earthquake shock, the government engineers intend to reinforce the concrete by embedding in it no less than seven thousand tons of old rail. This metal consists partly of a light rail which was used during the era of French construction, and partly of more modern American rails, which have been so badly bent that they can no longer be used in the track."



Anti-Freezing Mixtures

The following are rules for avoiding freezing of water in the cylinders, pipes, radiators, etc., of the cooling system of water-cooled automobile engines and stationary explosive engines. As soon as freezing weather approaches or when the temperature drops as low as 40 degrees F. all water should be drained from the radiator, cylinders and pump, says Gas Review, and the radiator filled with one of the solutions given.

1. A mixture of glycerine and water in the proportion, by weight of 25 per cent of the former and 75 per cent of the latter, to which is added 2 per cent of sodium carbonate.

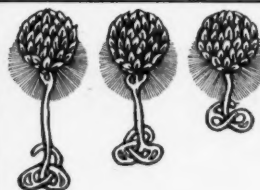
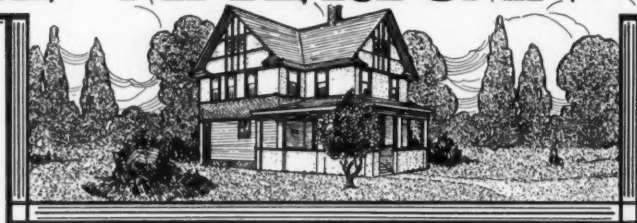
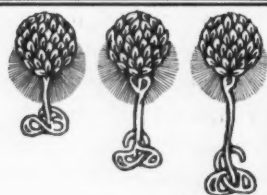
2. Chemically pure calcium chloride dissolved in hot water in the proportion of 4 pounds to one gallon of water.

3. Sodium chloride (common salt) or magnesium chloride dissolved in water in the proportion of 1½ to 2 pounds to the gallon

4. Wood alcohol in the proportion of 20 per cent alcohol to 80 per cent of water. This solution has the advantage of being sufficient for average winter weather, and it has no ill effect of any kind on metals nor does it leave any sediment.

Should the thermometer reach as low as 15 degrees F., a solution of about 25 per cent alcohol and 75 per cent water should be used. For temperatures below zero, use 30 per cent alcohol and 70 per cent water.

TYPICAL AMERICAN HOMES



Desirable House and Bungalow Designs

PHOTOGRAPHS AND FLOOR PLANS OF FIVE VERY ATTRACTIVE LITTLE HOMES—FEATURES OF CONSTRUCTION AND FINISH—CERTIFIED COST

IT IS always the greatest help, both to the prospective home builder and to the architect or building contractor who would "land" his prospect, to have on hand some attractive exhibits—photos and floor plans of actual work. Most every man, when he comes to want to build, has some *general* notion as to the size and style of the house he would like, yet his

With this in mind we present herewith photos and floor plans of five practical and desirable homes. They differ widely in style, size and cost. Each has worked out very successfully in actual construction. They will supply many valuable ideas to builders.

Five Room Bungalow

The first, a 5-room bungalow, was built at North



Living Room. Showing Brick Fireplace and Alcove—North Abington Bungalow

ideas are extremely hazy, making it difficult to go ahead, at least with any certainty of pleasing.

From photographic views of actual work, however, the prospective builder, even though ignorant of architectural terms, can tell what he likes and what he doesn't, making it easy for the experienced designer to give him what he really wants.

Abington, Mass., about three months ago. As finished it cost \$1,600. This bungalow was left in the rough, the frame and boarding being dressed on the inside and the boarding matched. The living-room is open to the roof, which with the big fireplace makes an attractive room. The alcove off the living room is used as a dining-room and may be separated from

the living-room by portieres hung under side of beam. Over this alcove is a sleeping-room, which is reached by stairs shown. The big dormer window in this room makes it practically an outdoor sleeping-room, as it is

locker. The kitchen and pantry are finished natural and the rest of the first floor in stained mission oak. Basement, in concrete, contains furnace, fruit-room, fuel-room and laundry. The dimensions of this house



Five-Room Plastered Bungalow, Built at North Abington, Mass., Cost \$1,600, W. F. Barlow, Jr., Brockton, Mass., Architect

separated from the upper part of the living-room by a balustrade 3 feet 6 inches high.

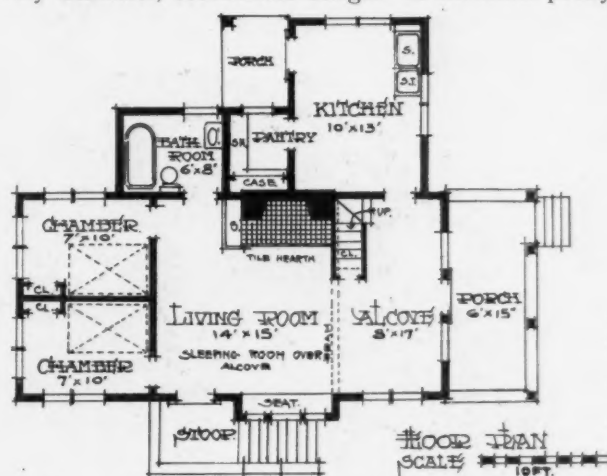
All floors are of hard wood. The living-room trim is stained a deep green; the kitchen is finished natural; bedrooms are stained brown. The outside of this bungalow is covered with slapdash cement stucco on wire lath. The roof is of asbestos shingles. All windows are casements to swing out. There is a cellar under the main house.

Story-and-Half Mission Cottage

The next is a design for a small house combining simplicity, beauty and homelike appearance. The broad, low and well-sheltered front porch with large, square columns, the low overhanging eaves of the main roof and the perfectly proportioned dormers in the second story provide an exterior which is simple and at the same time beautiful. The staircase hall is large, and the main landing is provided with a window seat. An arched opening, having square columns with heavy mission capitals and beams overhead, leads from the hall to the living room. The mission design is carried to the bracket shelf of a corner mantel of red tile in the living-room. There is also an arched opening between the living-room and the dining-room. A pretty feature of the dining-room is a deep bay, which has five leaded glass casement windows. This room also has a coved ceiling and a plate rack. Pantry contains porcelain enameled sink, kneading boards, drawers and

are 26 by 28 feet; first story, 9 feet in height; second story, 8 feet 6 inches; basement, 7 feet 6 inches.

The 8-room house illustrated on page 353 is of a very desirable, economical design. It furnishes pretty



nearly a maximum of size and convenience for the amount expended. It is a design especially good for a narrow lot. This house has been built at Oshkosh, Wis., for \$3,000.

Seven Room House

The fine 7-room residence shown on page 354 was completed last month at Brockton, Mass., for \$4,200. This price included everything to complete the house ready to occupy. The house has the best of materials

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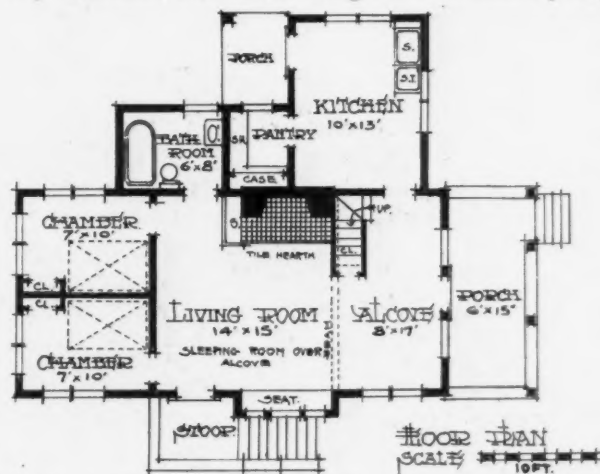
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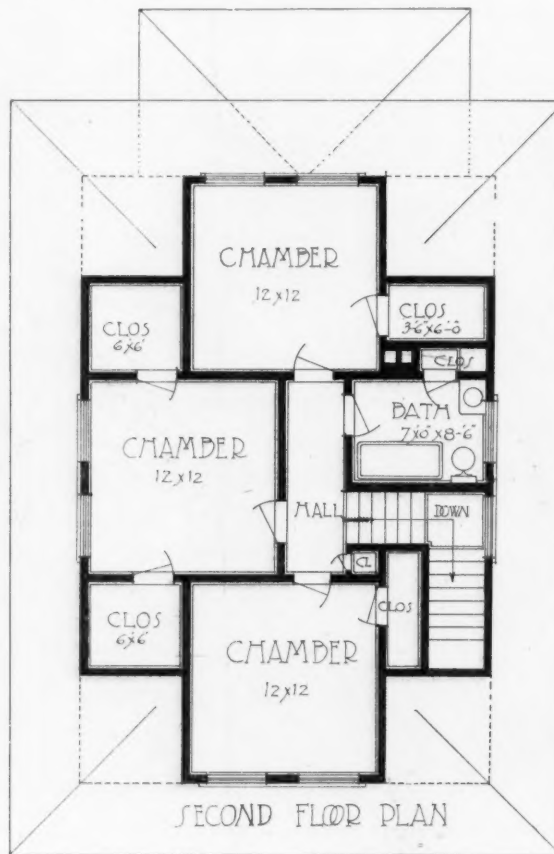
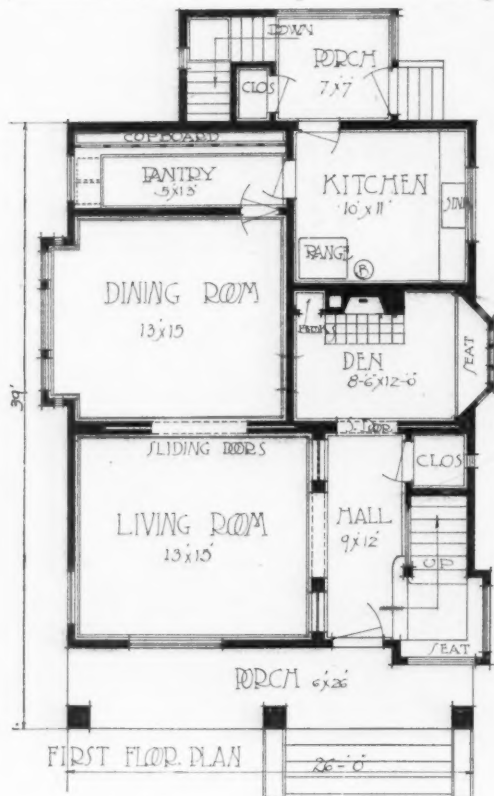
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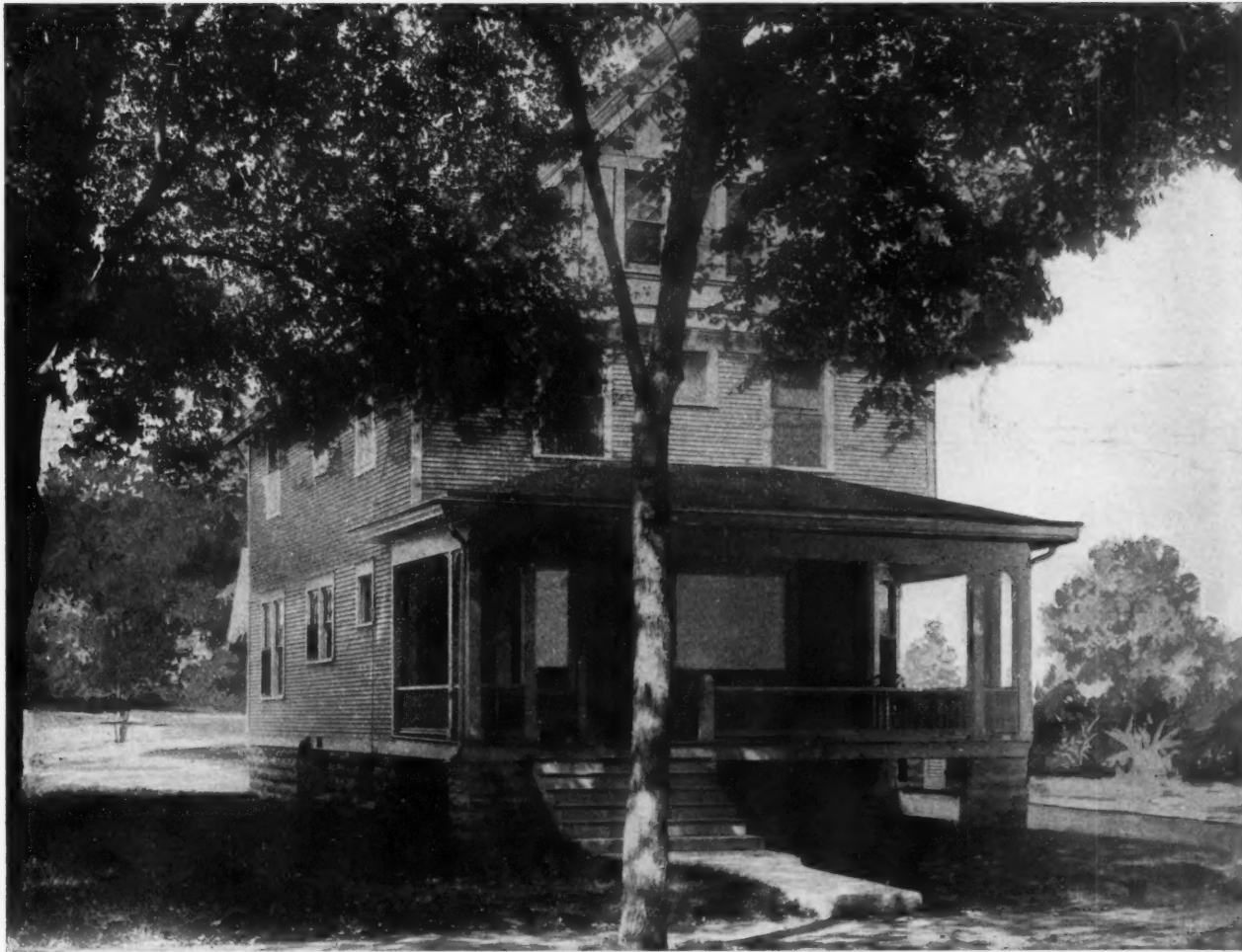
The fine 7-room residence shown on page 354 was completed last month at Brockton, Mass., for \$4,200. This price included everything to complete the house ready to occupy. The house has the best of materials

and every improvement. The rooms are large and well lighted. The house is wired for electric lights and piped for gas, combination fixtures being used. All the rooms throughout the house have hardwood floors, stained and oiled. The parlor and sitting-room

are painted a cream white; dining-room stained; kitchen, entry and bath finished with North Carolina pine, finished natural; chambers painted.



Attractive Story-and-Half Cottage Built in Seattle, Wash., for \$3,000. Thos. L. West, Architect



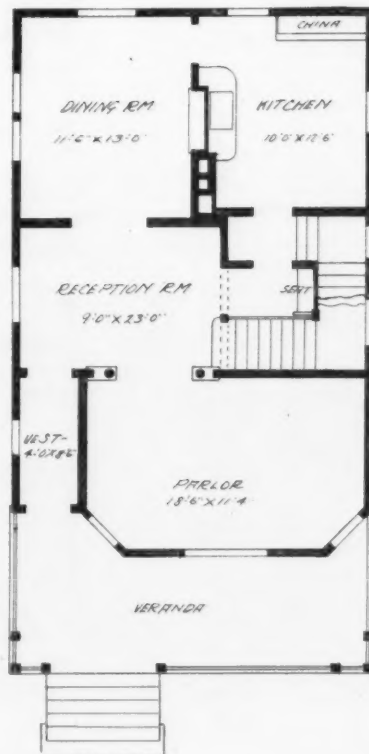
Eight-Room House of Dignified Design, Built at Oshkosh, Wis., by Fluor Bros. Construction Co., Cost \$3,000

The two central chambers have large dressing-rooms attached which contain hooks, shelves and wardrobes. The owner has the attic fitted up as a billiard-room.

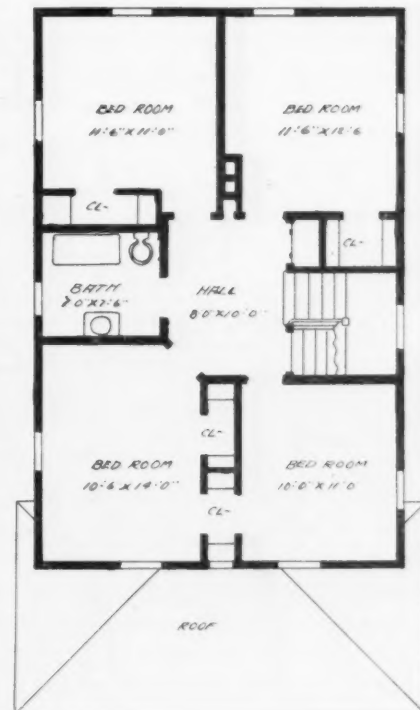
The plumbing is No. 1 grade, both in kitchen and bath. The bathroom is one of the special features of this house, being about twice as large as the ordinary bath and containing a case of drawers, medicine case and linen closet. This linen closet has three large drawers, above which are shelves spaced to ceiling. The house is heated by steam. The price stated includes paper, shades and screens.

House with Dormer Windows

A very cosy dwelling is illustrated on page 355, the residence of Mrs. Robert D. Sampson, near Coolidge Point, Mass. The exterior finish of the house is of stucco, its soft cream tones contrasting with the cypress trim, which is stained a dark brown. The deep pitched roof, curved from the ridge pole to the eaves, extends



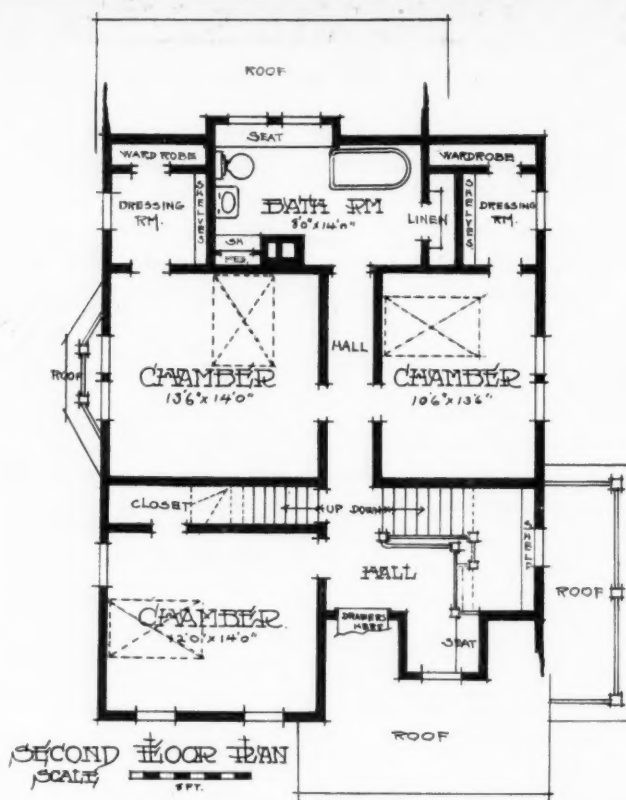
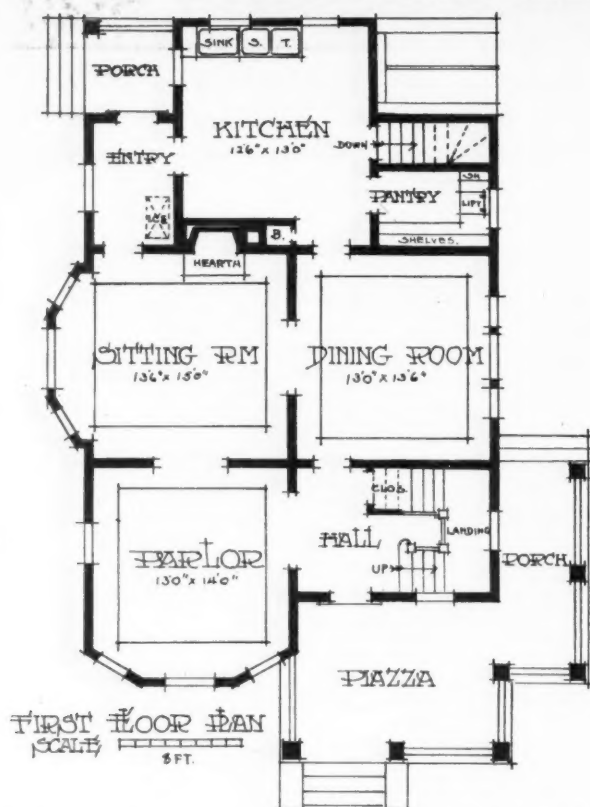
First Floor Plan



Second Floor Plan



A Fine Residence for \$4,200. Built at Brockton, Mass.. W. F. Barlow, Jr., Architect



at the front to form a covering for the broad veranda; it is shingled and painted to match the trim, and is broken at intervals by large dormer windows.

The simplicity and compactness of this pretty home

is a pleasing variation from the stately pretentious beauty of the majority of homes in this neighborhood. In fact, it is its very simplicity that constitutes its chief charm.

How to Paint a Bath Tub

Assuming that it is an old metal tub which has never been painted. First—the tub should be thoroughly cleaned. To do this, wash it with soap and water, or with soda, or with sapolio, in order to get

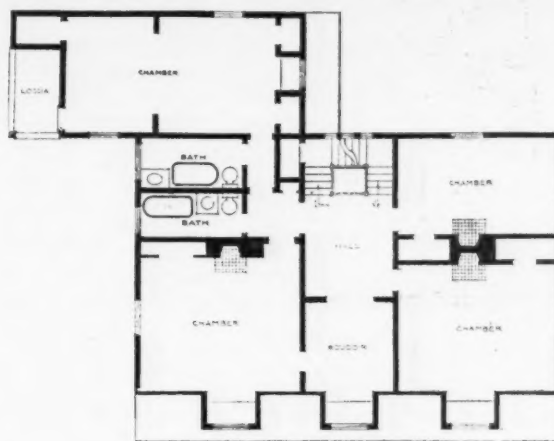
bristle brush in putting it on and being careful not to get on too thick a coat. Allow this coat to dry for at least 24 hours, when a second coat of this same lead should be applied in the same way and allowed to dry also for at least 24 hours. The tub is now ready



Residence of Mrs. R. D. Sampson, Coolidge Point, Mass., Chas. K. Cummings, Boston, Architect



First Floor Plan



Second Floor Plan

off the grease; then rinse out with clean, hot water, wiping dry with dry cloths. Then roughen up the surface of the tub by going over it with fairly coarse sandpaper, and wipe out the little dust and dirt produced by the sandpaper with a dry cloth. The tub is now ready to be painted. The first coat should be white lead in oil thinned with turpentine, using a flat

for the coat of enamel, using a kind especially made for such purposes. Open the can, stir the enamel thoroughly and apply with a flat bristle brush, carefully and evenly. One coat of this enamel is sufficient, which should now be allowed to dry from four to six days. When you again commence using the tub do not allow *hot* water to run into it first, as it may soften up the enamel. If the tub has been painted in the past, the old paint should be scraped and sanded off before painting.



Ignorance may mean bliss in some jobs; but in the paint business it more often means blisters.

Rochester's Competition for Small Houses

THE PRIZE-WINNING DESIGN ILLUSTRATED WITH ELEVATIONS, FLOOR PLANS AND DETAILS OF CONSTRUCTION—HOW THE COST IS TO BE KEPT DOWN

IN THE spring of 1908 the Chamber of Commerce of Rochester, N. Y., inaugurated their competition for single and detached cottages, the object being to assist in providing low cost dwellings for the working men living in the suburbs or outskirts of the city.

The program called for three classes of cottages, \$1,500, \$1,200 and \$1,000 respectively. Prizes were offered for the three best designs in each class. The accompanying design, submitted by Johnson & Schenck, architects, was awarded first place in the \$1,500 class. It is a 6-room cottage 23 feet 6 inches by 24 feet with all the conveniences of an attractive modern home.

The houses were to be built upon city or town lots not less than 40 by 100 feet, in blocks of ten, each house to contain a bathroom with three fixtures, a kitchen sink, sewer, water and gas connection to street, heat pipes and registers for future furnace, cellar and foundation excavations to be in earth.

The program stated that the style of construction and materials used was optional.

With a liberal interpretation of a very liberal program the material selected by Johnson & Schenck for the exterior was lime plaster upon wood lath. A precedent for this material is found throughout Quebec



and Ontario, Canada, where it has been successfully used for more than seventy years, proving conclusively that plaster when well applied can be depended upon as an exterior wall covering. Exterior plastering may be applied in several ways, and below we show three sketches, any one of which could be followed in this competition.

Fig. 1. The exterior lath is directly nailed to the studding in a diagonal manner with a space of 1 inch between laths; over this in the opposite direction another layer of lath is nailed, this diagonal lath forming a good system of bracing for the entire building.

Fig. 2 has good thick building paper applied directly to the studding; over this paper and to the studding are nailed strips of 1 by 2 inch, to which is nailed the lathing in the regular way.

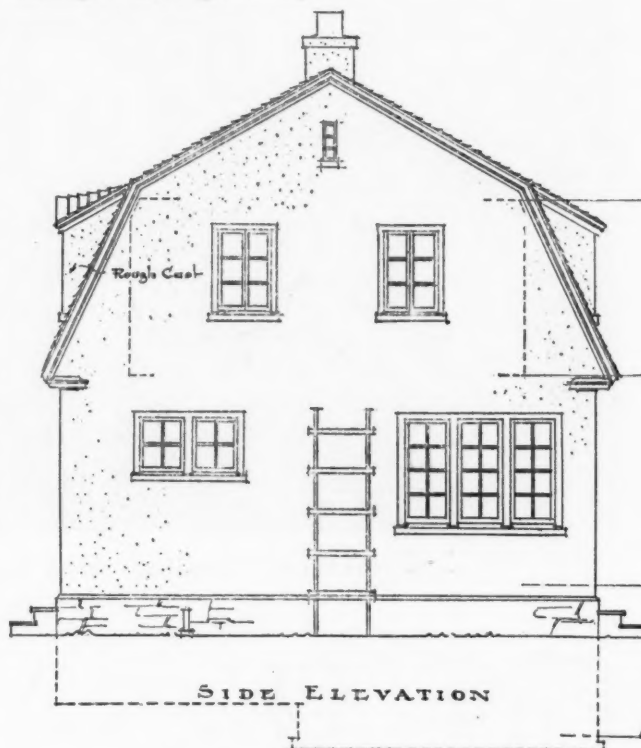


Fig. 3. The $\frac{7}{8}$ -inch boarding is nailed to the studs, and over this sheathing is applied the building paper fastened by having strips of lath nailed vertically, these strips giving a key for the exterior plaster.

The surface of exterior plaster can be made thoroughly waterproof with an application, after one year or eighteen months, of three coats of lead and oil.

For economic reasons the method shown in Fig. 1 was followed in this competition.

The next important economical point in construction was the introduction of casement sash with small lights of glass 9 by 12 inches, the sash opening outward to admit of the use of fly screens. The frames were solid, thus making a saving in the omissions of either outside or interior casing.

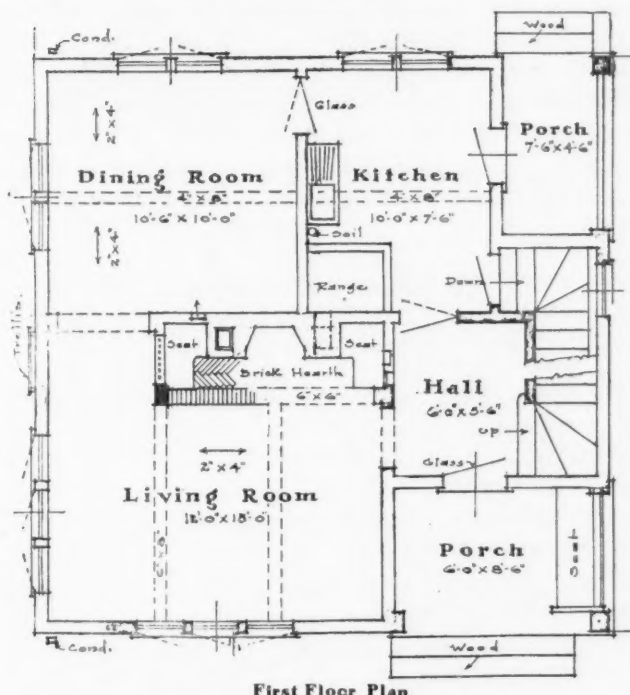
Another item was the introduction of girders in the floor construction, which allowed the use of smaller joist, 2 by 4 inches, set 16 inches on centers, and the omission of the usual bridging.

The doors were designed of V-jointed boards placed vertically with cross battens and long strap hinges. The jambs were solid of 3 by 5 inches and flush with the plastering, avoiding the use of an interior trim.

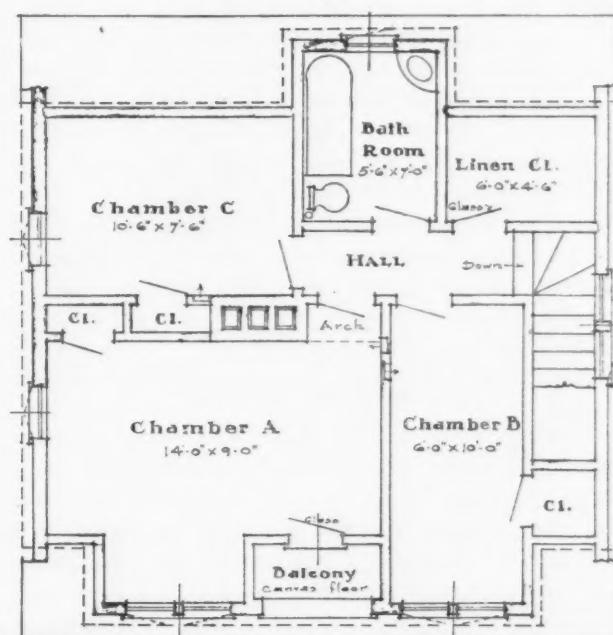
In the planning of the house the square form of plan was adopted, as it presents a greater amount of floor area than the long, narrow plan. This can be easily illustrated by comparing the cubic contents of a plot 4 by 4 feet, or 16 square feet, and a rectangle

sidered, especially since, owing to its central location and construction, no face brick is required on the exterior of the building.

On the second floor there is a large double bedroom with a balcony on the front. There are two smaller



First Floor Plan



Second Floor Plan

8 by 2 feet in which the former has 16 feet of wall surface against 20 feet in the latter case, yet the areas are precisely the same.

The stair hall was separated from the living-room and the stairs made convenient to the front door, which, in turn, is of easy access to the kitchen. The dining room is separated from the living room by an arched opening, and so placed that, while it is convenient to the kitchen, it also has the privacy which is so desirable in a house of this kind where the family can dine without being disturbed by the stranger who is likely to step in at unexpected moments.

The ingle-nook in the living-room is the predominant "feature" of the plan. It has two comfortable high back seats at each side, far enough away from the blazing logs to make the heat agreeable. The pro-

bedrooms. Each room has a closet and there is also a large linen closet or storeroom. There is absolutely no space wasted in the hall, and the bathroom is easily accessible from all of the rooms.

Another economical feature was the arrangement of placing the bathroom plumbing directly over the line of the kitchen plumbing in the first floor.

The chimney flues are all lined with terra cotta pipes their full length, and the latter extend about 15 inches above the top, giving the effect of chimney pots at a much less cost. By the use of flue linings the thickness of brick around the flues is reduced to a minimum of 4 inches.

In designing the exterior the architect made the idea of simplicity in form and detail a predominating factor. There are no unnecessary brackets or dentils and

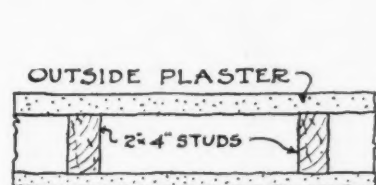


Fig. 1.

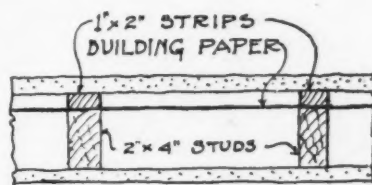


Fig. 2.

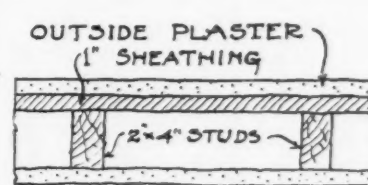


Fig. 3.

jecting mantel shelf supported by heavy wood brackets and the dark stained wood wainscot at either side form a rich contrast to the rough brick fireplace with wide mortar joints between the brick.

It will also be noted that the entire heating system is controlled through the one chimney. This has its decided advantage when the matter of cost is con-

no overloaded masses of dormers and projecting bays. The gambrel roof brings the main cornice nearer the ground than any other form of roof, and thereby aids in preserving the low effect, which is a difficult problem in designs of this nature.

The curved line over the balcony and the irregular cut end of the porch seat break up the horizontal line

effect of the front elevation. There is abundant light in all the rooms. The casement windows, consisting of a number of unit sash, are a saving to the millman, and also give dignity and harmony to the exterior.

The interior woodwork of this house is intended to be stained throughout a rich brown color and all exterior wood to be stained a darker shade, including the roof shingles, which should be a trifle lighter in tone. The muntins and sash should be painted white, and the exterior plaster left its natural color. The interior walls may be plastered with a rough sand finish, and in this case no papering will be necessary.

The builder who submitted the bid agreed to build ten cottages from the drawings and specifications for \$15,000, which is about 14½ cents per cubic foot.—*The American Architect.*

✦ Tilting Flour Bins

There is probably no part about the planning of a house that requires more attention from a woman's standpoint than the planning of the kitchen and pantry. To save the time and labor of her whose work is never done, is no slight task for the architect. Tastes vary as to conveniences, and the architect must in a measure work to her individual notions. For instance, one wants flour bins to be just so and so, while another would not have the pesky thing in the house. A large drawer is just the thing! It can be taken out, sunned, etc., and so it goes.

From our own experience, we believe in a movable tilting bin made large enough to receive a sack of flour without emptying and here submit a few sectional views of such bins.

Fig. 1 shows the bin to be swung on a pivot, as shown at A, which can either be a hardwood pin inserted in the sides, or an iron plate screwed onto the side, the pivot resting in a socket made in the frame work. It should be located a little to the front of the center of the bin.

Fig. 2 shows another form of bin with the bearing

on the bottom. This allows the bin to swing outward and remain open.

Fig. 3 shows another form of bin similar to No. 2, but the bearing is at the front. This bin has a button on the back side of the front framework to prevent the bin from tipping too far out. The face of Fig. 2 and 3 can be finished with a lip, giving it a more finished appearance; but Fig. 1 cannot be so finished on account of part of the bin swinging inward. Either of these bins can be readily lifted out of place for cleansing purposes and as easily set in again as there is nothing about their construction to get out of order.

✦ A "How to" Tragedy

Smith liked to study "how to" books, to add unto his knowledge—

On how to shave on railroad trains and how to sidestep college,

And how to make the hen game pay and how to write short stories,

And how to raise prize cabbages and also morning glories;

The latest of these wondrous works on which poor Smith has blundered

Is "How to Build a Bungalow for Less Than Seven Hundred."

It seems Jones lent the book to Smith, just as a passing favor,

For Smith was just about to build and sought a money saver;

Now Smith has spent three thousand flat and seeks still more to borrow,

The while the roofless bungalow looks like a haunt of sorrow;

And so alas! it comes to pass a friendship firm is sun-dered

By "How to Build a Bungalow for Less Than Seven Hundred."
—*Denver Republican.*

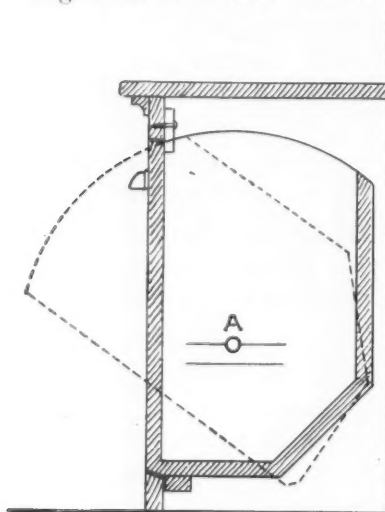


FIG. 1.

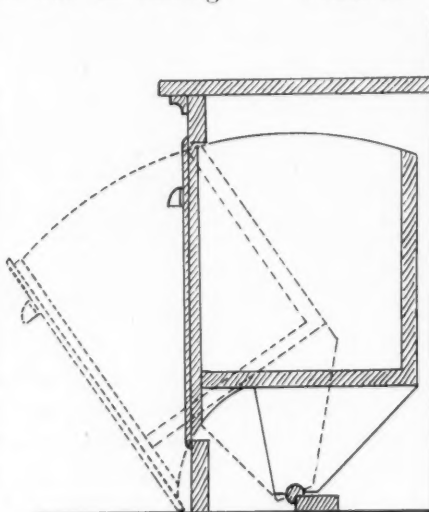


FIG. 2.

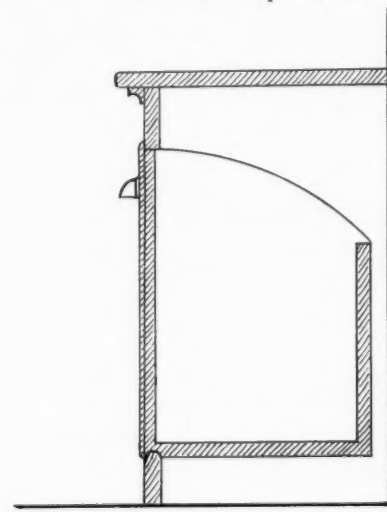
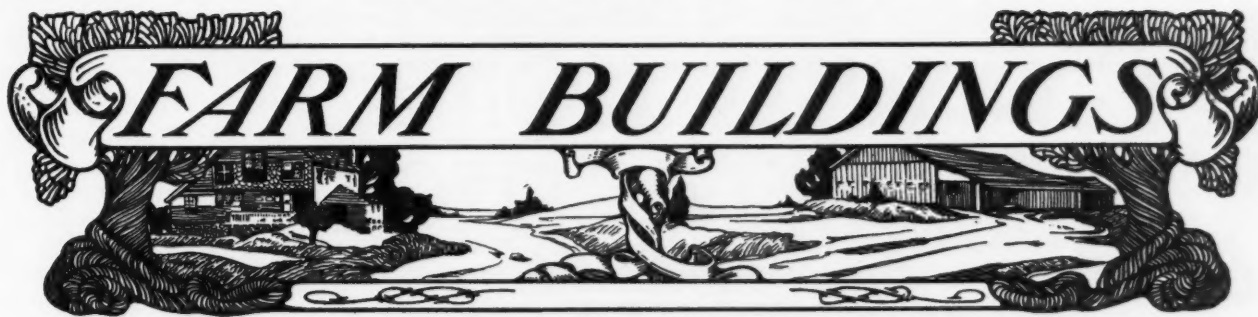


FIG. 3.

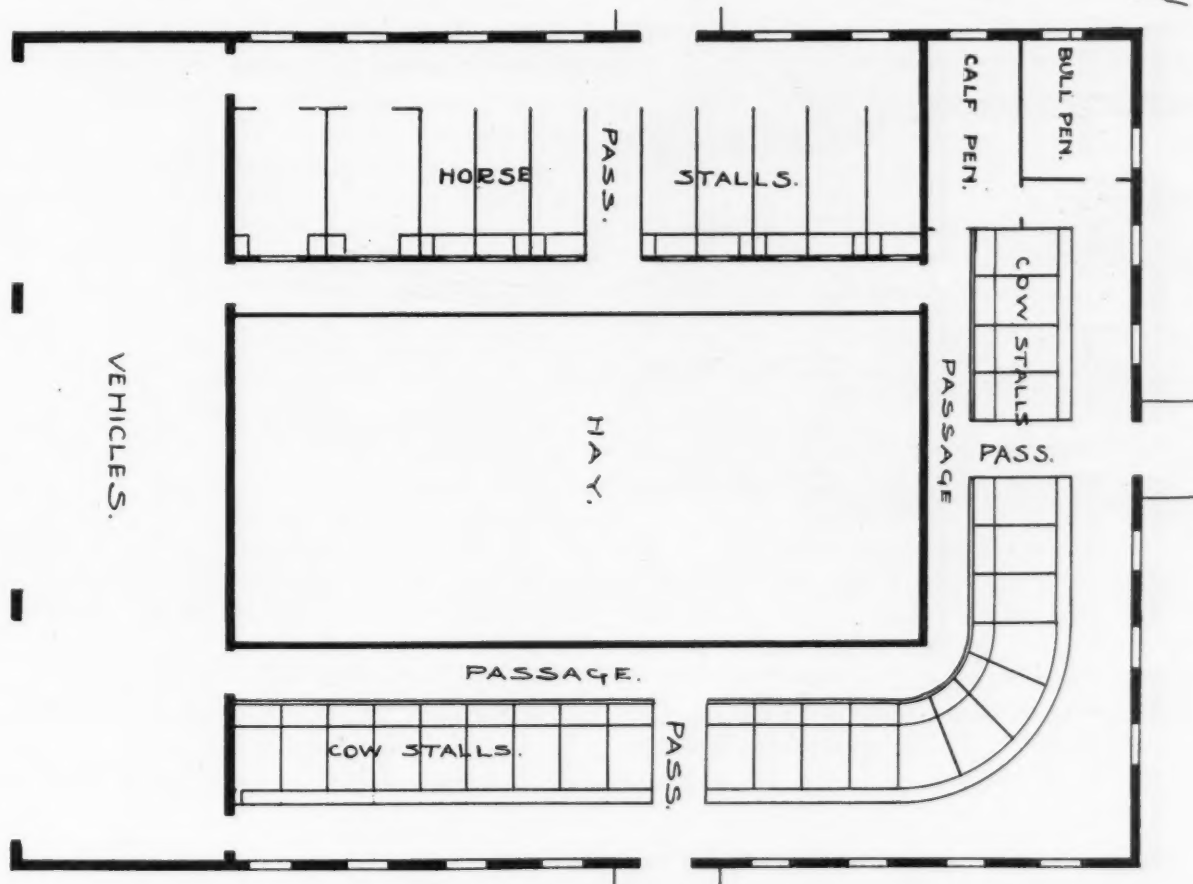
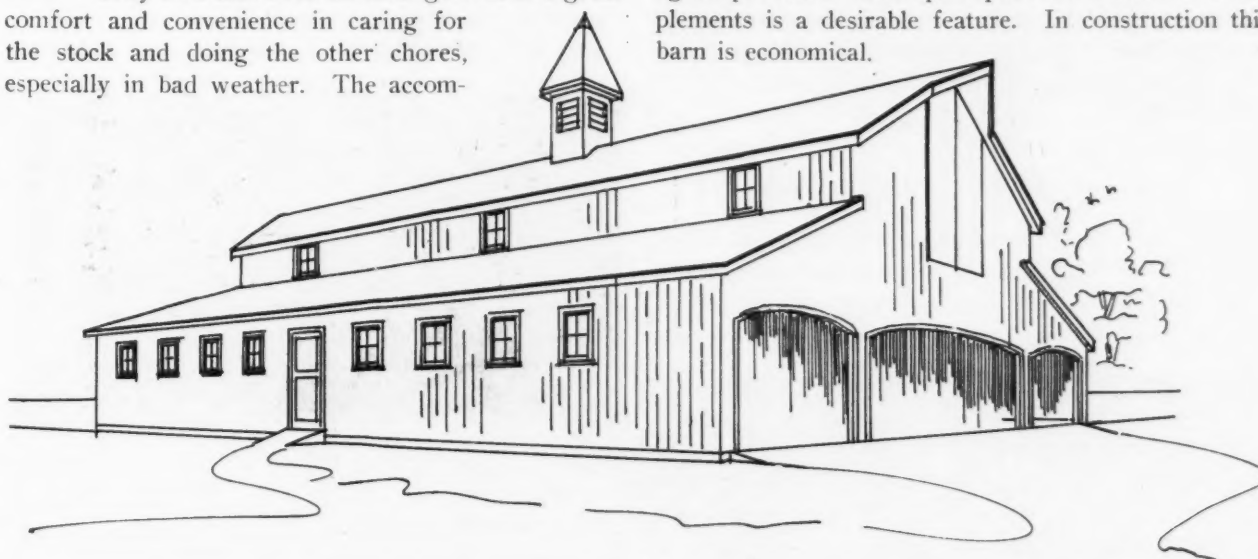


Desirable Stock Barn and Store House

PERSPECTIVE AND PLAN OF A VERY WELL PLANNED FARM BUILDING ARRANGED FOR HORSES AND DAIRY STOCK, FEED AND IMPLEMENT STORAGE.

A GOOD many farmers like to have all their farm buildings grouped together under one roof. They find that such an arrangement is a great comfort and convenience in caring for the stock and doing the other chores, especially in bad weather. The accom-

panying design illustrates this. Twenty-four milch cows and eight horses are stabled and ample feed storage is provided. The open space for vehicles and implements is a desirable feature. In construction this barn is economical.





Christmas Gifts of Modeled Leather

TIMELY SUGGESTIONS FOR THE HOME-CRAFTSMAN—SIMPLE AND COMPLETE DIRECTIONS FOR DOING THIS INTERESTING AND PROFITABLE WORK

LAST December we described simple pieces of sheet-metal work suitable for Christmas presents. At that time we promised our readers an article on modeled leather work for this Christmas. This craft, in its simpler applications, is quite as easily learned as the metal work and the articles are as fully, if not more, acceptable.

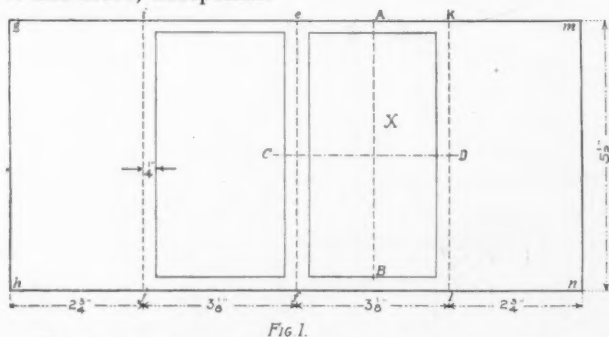


Fig. 1.

The equipment is very simple and inexpensive.

Two simple methods of treating the leather surface are (1) to stamp or stipple the outline with a tool, (2) to lower the background by means of a tool, called a modeling tool.

We shall describe the manner of making a bill book,



Fig. 2. Double Ended Leather Working Tool

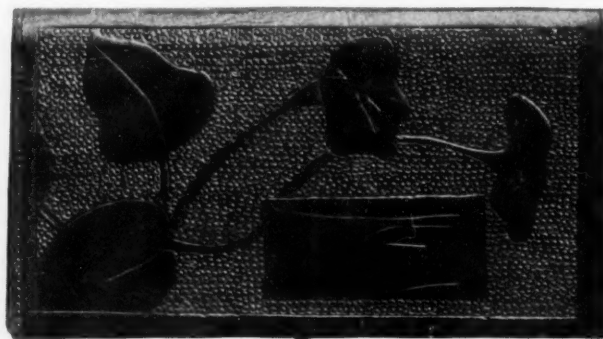


Fig. 3. Single Ended Leather Working Tool

which will illustrate the general order of procedure.

The first thing necessary is a pattern. A drawing board, T-square and triangle are convenient, though not absolutely necessary in making this. Place a sheet of ordinary drawing paper upon this board and make a drawing as in Fig. 1. The dimension lines, however, should be omitted.

In the space marked (x) is to be placed the design, which shall appear on the front of the book. For a symmetrical design the lines AB and CD should be drawn so as to divide the space into four equal parts. Then with a rather soft pencil draw one-quarter of the design. Fold the paper carefully along AB and



Modeled Leather Bill Book

trace another quarter by rubbing with a chisel handle the back of the quarter just drawn. Now fold along CD and trace the remaining half. If the same design is to appear on the back, fold along ef and trace. Go over the whole design with a pencil so as to make it distinct. Experience has shown that well spaced simple designs are as effective as any. Care must be taken that plenty of unstamped surface shall appear. If necessary stamp in the design and leave the background; though in general the background should be stamped. In order that the design may be easily placed in position on the leather it is advisable to trim off the surplus paper.

Provide yourself with a modeling tool (Fig. 2), a nail set with a hollow point, and a light hammer or mallet. All that is needed to complete the equipment is something smooth and hard upon which to work. Marble or heavy glass will do. The writer used a sheet of brass screwed onto a block of wood, as in sheet-metal work. Wood will not be satisfactory, as it absorbs the moisture from the leather and is not hard enough. A pan of water and a sponge will be needed.

The leather should be cut about a quarter of an inch larger all around than the pattern. A knife and a straight-edge are needed for this.

Take a piece of leather and with the sponge and

water moisten it on the back—the rough side. It is difficult to say just how much to moisten, as some pieces take more water than others. In general, a few times across with the sponge will answer. If the leather then does not take the impression of the tool, moisten again slightly until it does. It has been given too much water if dark spots begin to appear on the face side, and should be allowed to dry some before being worked. The leather should be kept moist while being worked.

Place the leather upon the metal with the smooth side up. The next step is to trace the design onto the leather. It is possible to devise a way of fastening the design and leather together upon the block, but not without some loss of material.

All straight lines of the pattern, including the outer edges, should be traced with the V-shaped point of the modeling tool (Fig. 2), aided by a straight-edge. Care should be taken to make sharp corners and not to cut the leather.

While the tracing is done over the pattern, the pattern need not be injured if the work is carefully done. The design may be traced onto the leather with a pencil as the paper keeps it from discoloring the leather.

Remove the paper and go over the design again, using the V-shaped point of the modeling tool, aided by the straight-edge, for the straight lines, and the

enough to cut the leather. If necessary, put the nail-set on the stone to take off the sharpness of the edge.



Bags and Books - Background Lowered

Special tools can be purchased for this work but the nail-set answers very well.

After the stamping is completed go over the lines again so as to make the design "stand out."



Fine Modeled Leather Work, by Students of the Chicago Art Institute

other point of the tool held so as to make as narrow a line as possible for the design.

With the hollow-pointed nail-set and hammer stamp in the background, being careful not to strike hard

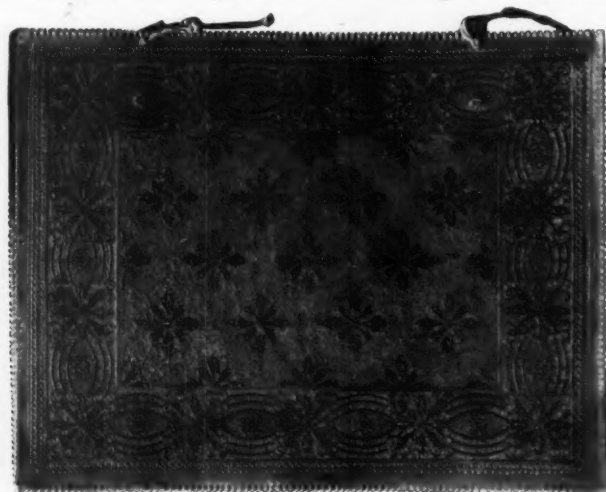
Now cut along the lines which were traced from the lines gh and mn (Fig. 1), and fold along the lines traced from ij, ef and kl (Fig. 1), tapping lightly with the hammer to flatten the folds.



Artistic Leather Purse and Card Cases—They Are Decidedly Worth While

Sew along the ends and cut off the surplus leather and the book is ready for use. In all cutting, a sharp knife and straight-edge serve best. The leather, though thick, is soft, and may be sewed on the sewing machine.

The manner of procedure in making the card case



Tooled Leather Book Cover

is the same as in that of the bill book, except the background is not stamped, but is lowered by means of the round ends of the modeling tools. (Fig. 3.) These

ends are of various sizes and suggest the uses to which they are to be put. Leather, like wood, has grain, and if you find the surface roughing up, as you try to press it down, rub in the other direction.

Many things which can be made will suggest themselves to you. Small mats, stamp books, covers for note books, bags, belts, magazine covers, portfolios and many other things can be made. Suggestions from the accompanying photographs can be used. In one of the illustrations the two book covers in the foreground are neither stamped nor modeled. They are of goat skin with the oozed side out. This leather can be obtained in the most beautiful soft colors and can be worked up in many ways. The other pieces shown in this photograph have the entire backgrounds lowered.

Frequently the background is worked down only about the design. To aid in raising the design modeling wax is sometimes placed under it as the tooling proceeds. Again, stamps of different designs are used which, when properly combined, produce beautiful effects.

A word of caution is necessary. All kinds of calf skin will not model. Some colors work better than others. The safest way is to order of those who make a business of supplying this trade.

How to Make a Dictionary Stand

COMPLETE DIRECTIONS FOR MAKING THIS SIMPLE THOUGH USEFUL PIECE OF FURNITURE--THE NEW "FOREST GREEN" FINISH DESCRIBED

A DICTIONARY stand of simple design and construction is offered this month in addition to the Christmas leather work of the preceding article. It will not take long to make it.

Use either red or white oak. Since the pieces are mostly square it will hardly be worth the extra expense to specify quarter-sawed stuff. Order as follows:

STOCK BILL FOR DICTIONARY STAND

1-piece,	1¾ inches by	1¾ inches by	39 inches,	S-4-S.
2-pieces,	1¾ inches by	1¾ inches by	20½ inches,	S-4-S.
1-piece,	¾ inch by	6¼ inches by	10½ inches,	S-2-S.
1-piece,	¾ inch by	12¼ inches by	22½ inches,	S-2-S.
4-pieces,	1½ inches by	4¼ inches by	6½ inches,	S-2-S.
1-piece,	¾ inch by	1½ inches by	22½ inches,	S-2-S.

It is possible to save a little expense at the mill by combining pieces of similar thickness and width before ordering.

Begin at the top first, squaring it up to a width of twelve inches and a length of twenty-two inches. The under piece is to be finished to six by ten inches. Bevel this piece on the under side to one-quarter of an inch.

Square one end of the upright, measure the length and cut the top end to an angle of thirty degrees, planing it smooth. Bore a three-sixteenths-inch hole in the middle of each end to a depth of two inches.

The horizontals or base pieces are to be squared to a length of twenty inches each. The easiest way to shape the lower edges of these pieces is to place them together in the vise with what are to become the lower surfaces together. Lay off from each end, along the middle crack four inches. At these points bore holes of one inch diameter. Gauge lines along each side of each piece one and one-quarter inches from the top edges. With the compass saw cut along the lines far enough to insert the rip saw. The steel scraper will need to be used to smooth after the saws. Round the ends as shown in the drawing.

The cross-lap joints will next

be made. Lay out carefully with knife and saw accurately to the lines, being sure the grooves are laid out in the middle of the pieces before cutting.

To make the braces, square one edge and one end of each; then place upon these a paper pattern previously prepared which shall have the shape of the curve, full size. Mark around this pattern. These brackets are to be fastened to the frame by means of round head blued screws and will need holes at either end three-sixteenths of an inch in diameter. In putting these brackets in place do not undertake to fit them to any irregularities in the corners but draw the corners up to fit the bracket.

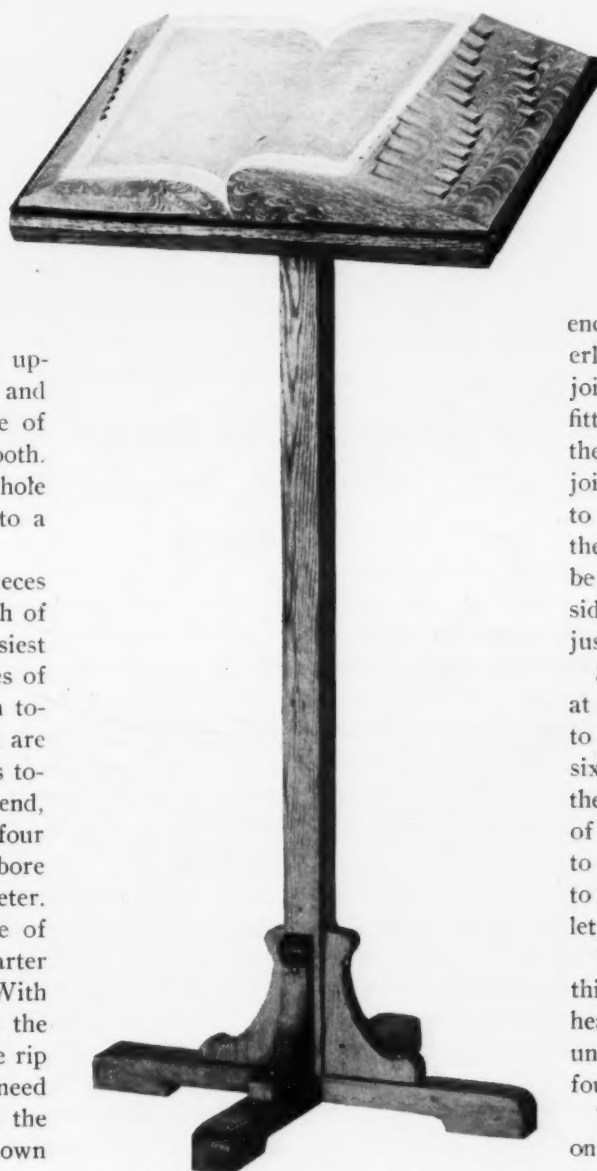
The curves of these brackets are to be cut with the compass saw and smoothed with the scraper.

Assemble the lower part first. Use a one-quarter by two and one-half inch lag screw to fasten the parts. A one-quarter-inch bit will be needed to bore the hole through the base for this. Fasten the braces in place. It is possible that some difficulty may be experienced in getting these to fit properly. This will be due to the joint of the base pieces being fitted too snugly. In such a case the pressure on the sides of the joint will cause one of the pieces to be bent below the level and the other above. The defect can be remedied by trimming the sides of the joint until it shall fit just right, with no side pressure.

Since the top fits to the post at an angle, it will be necessary to chisel a seat in the top of the six-by-ten piece for the head of the lag screw. The under side of this piece must be chiseled to a depth of one-quarter inch to allow the end of the post to be let in.

The top itself is fastened to this piece by means of round head blued screws through the under piece, one at each of the four corners.

The lip for the top is beveled on one arris only and is fastened to the lower edge of the top with three round head screws.



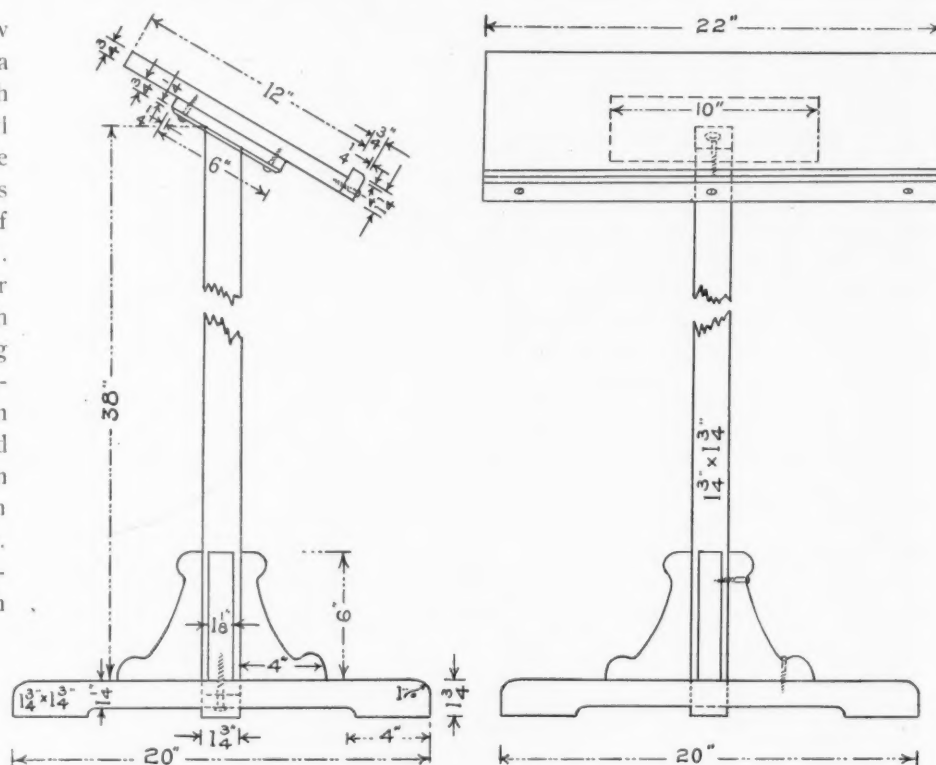
Simple Piece for the Home Shop

The New "Forest Green" Finish

Either a light or dark finish will be suitable—the finish of the other furniture in the room in which it is to be placed determining.

If one wants something new and unusual in the way of a finish, here it is. The finish is known as Forest Green and is very soft in color, a shade of yellow green. Proceed as follows: Put on a coat of forest green water stain. When this has dried over night sandpaper lightly with fine sandpaper, No. 00, long enough to remove the "whiskers" which the water stain raised, then put on a second coat of stain mixed with an equal volume of water. Upon this put a thin coat of shellac. This is to prevent the coloring matter of the filler from discoloring the high lights. The shellac being thin does not interfere with the filler entering the pores of the wood. Prepare the paste filler by coloring a natural filler with chrome green to the proportion of twenty pounds of filler to one pound

green. When dry, sand lightly and apply a coat of thin shellac. Sand this lightly when dry and apply several coats of wax.



DICTIONARY STAND.

This is a piece of furniture very easily made in the home shop. It would serve also as a musician's stand.

How to Secure Artistic Walls

PRINCIPLES OF INTERIOR DECORATION AND OF WALL SPACING TO PRODUCE THE MOST PLEASING EFFECTS—THE VALUE OF TINTS AND SOLID COLORS

By C. Q. Murphy

THE day of freakish attempts at wall decoration is rapidly passing. The spread of such a large amount of good reading in magazines and books has helped to educate people, especially women, to better standards in interior decoration.

An added force, and a force that must be reckoned with, is the teaching in schools and colleges of domestic art along the lines of the correct treatment of walls, how to handle colors, and how to arrange furniture and hangings.

We can easily recall the over-decorated cozy corners that were far from cozy, the Moorish rooms filled with a heterogeneous mass of so-called bric-a-brac—the big gorgeous roses on glaring walls, the decorated pie pans, water pails and bootjacks that were forced into an unwonted service in an attempt at artistic effects.

We know better now. Out of that incongruous, mixed-up mass, we have come to saner conditions and simpler decorating.

Art is not a striving after effect, but rather an achieving of suitable results. It produces rooms that

are pleasant to live in, comfortable to sit in, delightful to rest in and usable as well.

Walls are not surfaces for mere decorative effects, but they are backgrounds for furniture and furnishings as well as barriers, giving privacy and comfort, seclusion and rest.

With this thought in mind the color treatment of the wall surface is easily handled. The solid colored, softly tinted wall has been found to give universal satisfaction.

Just at the present moment the simple, soft tones are decidedly good. The women who are the final buyers of most wall decorations, are very discriminating in their choice of colors, and every woman knows—or thinks she knows, which is the same thing—exactly what she wants. If you give her simple effects, with a good stenciled design, she is pleased, because women's magazines say these wall treatments are the thing; and they are right.

An excellent and most popular combination is the use of the soft, delicate sage gray tint for the lower two-thirds of a wall, with upper third and ceiling

white. Stencil on this a rose design in green leaves and pink roses.

How to Space a Wall

In every job of interior decorating which calls for wall work, the question of correct spacing is inevitable. Some ceilings are too high and the room has

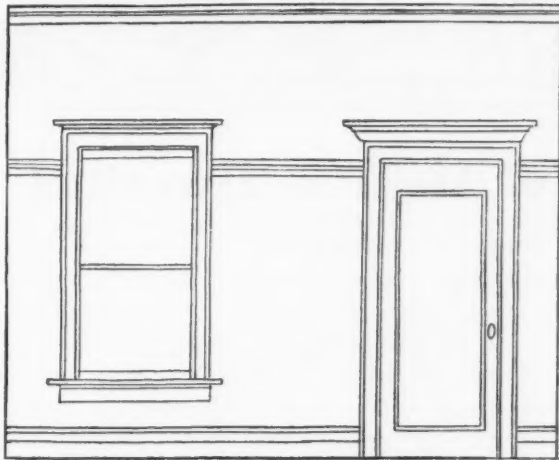


Fig. 1. To Make a Low Room Look Higher
Dimensions 8' x 12'. Door Opening 2½' x 6'. Window 2½' x 5'
the appearance of a deserted hall or opera house. Other rooms are too squatty and box-like, because the ceiling is too low. Others are difficult to handle because of the uneven heights, the varying heights of doors and windows.

In the very practical illustrations shown these problems have been worked out in a way that may be a help to some other decorator and painter.

In Fig. 1 the ceiling was too low; to give the effect of height, a single paneled door was introduced. The door and window being of uneven height, an extra molding was added to the door trim to even it up.

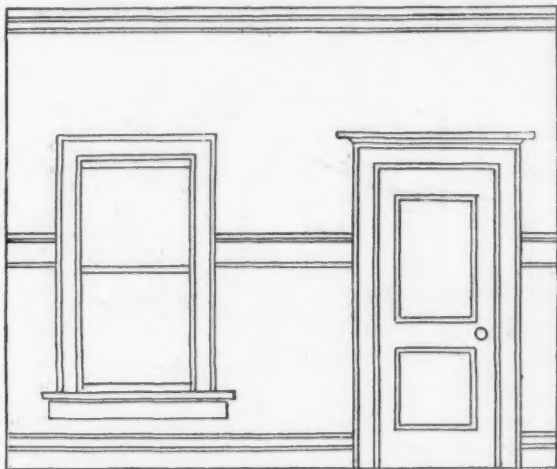


Fig. 2. To Modify Excessive Height

A plate rail was used about two-thirds up on the side wall, and light soft color was used for the portion of the wall. For the upper third a still lighter tone, and for the ceiling, white. The effect secured was that of apparent height.

Fig. 2 shows the result of dropping the plate rail

to the middle of the wall; the effect of excessive height is lost, and the room seems of lower proportions. Use a dark color on the lower half, and you have a still lower effect; use a tint on your ceiling, and again you lower the apparent height. The apparent height of the door is equalized by the introduction of two panels.

In Fig. 3 height is secured by the use of a single color to the ceiling, and the absence of horizontal lines. If perpendicular lines or stripes were used the apparent height would again be increased.

As a broad principle in decorating, vertical lines increase height and horizontal lines diminish it.

The introduction of patterns such as used on wall paper makes the room look smaller, because it seems to advance the wall toward you.

Panelings break up large flat spaces into more interesting effects, and make a room easier to furnish; they relieve the sense of bareness.

Friezes are good when they do not sacrifice the ap-

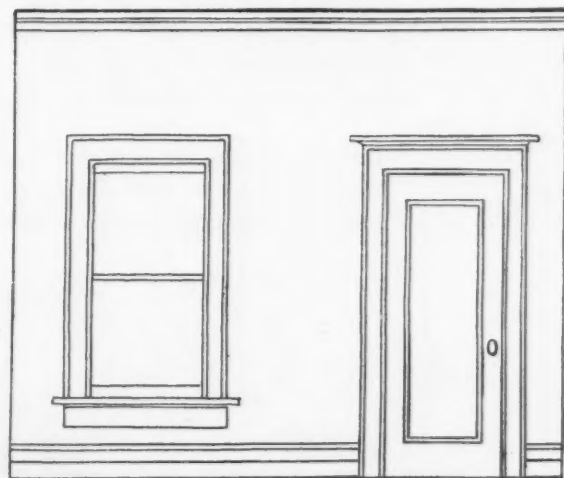


Fig. 3. To Increase Apparent Height

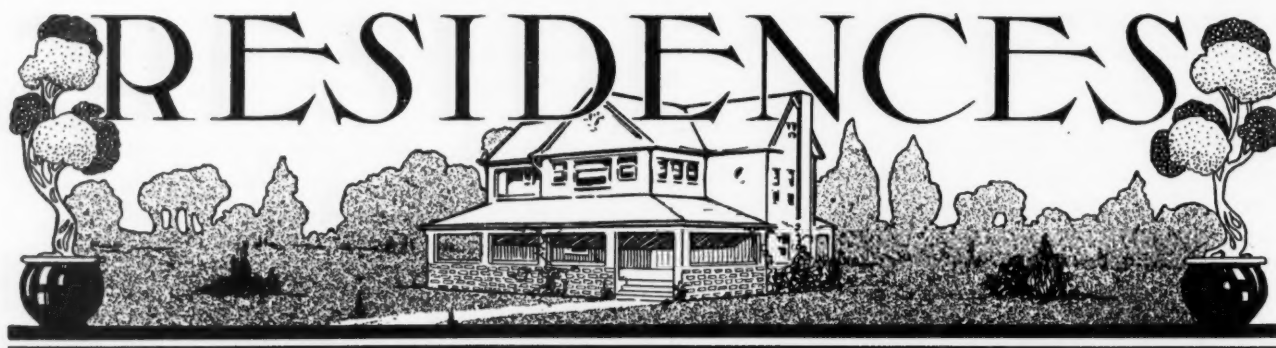
pearance of height and lessen the dignity of the room. There is a refinement about bands and beadings when used intelligently that has made them very popular.

But this matter of spacing a wall correctly is easy if you know how—and it is very easy to know how when the exact area of the room is estimated. Most rooms need balance: spacing gives that correctly.

+

How to Stick Leather on Metal

In order to fix leather to metal, dilute one part (weight) coarsely crushed gall nuts with eight parts (weight) of distilled water about six hours, and filter through linen. Then pour one part (weight) of cold water over one part (weight) glue, let it stand for 24 hours and heat the whole, whereby a concentrated glue solution is obtained. Now coat the leather with the warm gall nut extract, bring the glue solution on the roughened and warmed metal, lay the leather on it, press it firmly, and allow to dry in the air. The leather will adhere so firmly to the metal that it cannot be separated without tearing it.



Full Plans for Beautiful Modern Dwelling

[COMPLETE ARCHITECTS' DRAWINGS INCLUDING PERSPECTIVE, ELEVATIONS, FLOOR PLANS AND DETAILS OF A THOROUGHLY MODERN, FIRST CLASS RESIDENCE]

WE TAKE much pleasure in presenting this month the complete set of architect's plans recently prepared for Mr. Louis Braunhold, the artist. They show a ten-room house remarkable for its harmony of exterior appearance and for the completeness and convenience of its interior. This dwelling is to be erected on a wooded site at Wilmette, Illinois.

The materials outside are, for the first story, rough boards stained brown and lapped eight inches to the weather; and for the second, gray cement plaster on

wood lath, divided into panels in half-timber effect by rough boards stained brown. Brown shingles are used on the roof. All the exterior trim, including the cornice is painted white. The floor plans which have been prepared in a very complete manner show the size and arrangement of the rooms, position of lighting fixtures, etc. The very latest ideas along the line of modern conveniences have been embodied in this house. The living and sleeping porches and the third-floor studio rooms are special features. The detail sheets show some very interesting special finish.



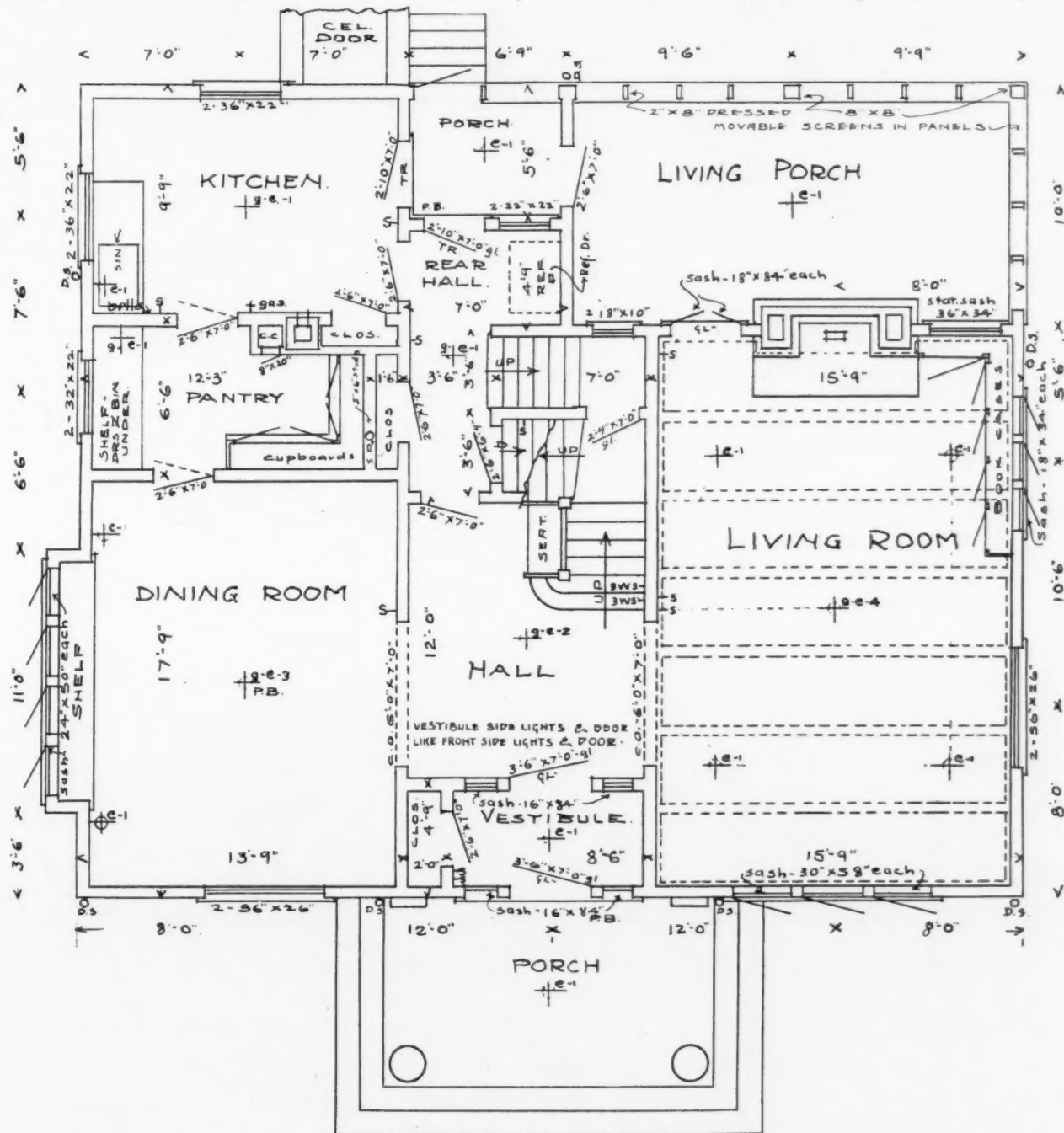
Artistic Residence Designed for Mr. Louis Braunhold, to be Built at Wilmette, Ill.

Decorative Harmony in Building

Every housewife appreciates the advantages of decorative harmony in her home, and to procure this, in the upholstery as well as the woodwork, is a problem which is often very troublesome in the solution. Beautiful colors and combinations are admired, but very

reference to this experience that harmonious decoration is secured.

If the fittings and cabinet work of a room are of light oak, soft greens, blues, or deep reds may be used properly in the decoration, but never purple. With the medium dark oaks, dark greens, rich reds, and



FIRST FLOOR PLAN

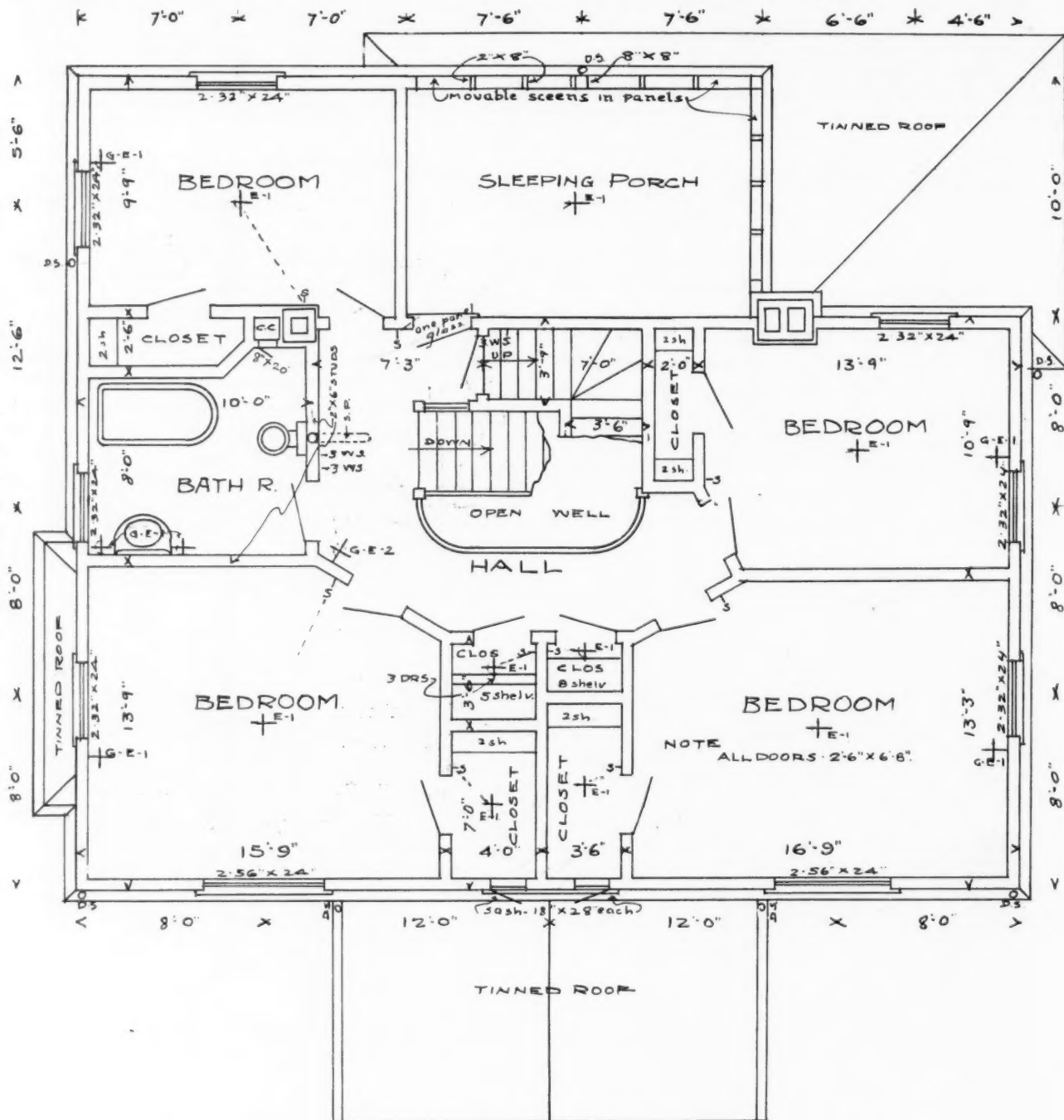
few appear to know the proper use of color. As a rule, the architect can suggest the proper coloring and shading, so that it will conform to the general surroundings; but as in all other things, experts do not always agree, because it is a matter of artistic taste rather than of mechanism. Experience gained in this line, however, has proved that certain effects will blend in harmony with certain colors, and, it is by

the lighter tones of blue will prove most acceptable to the eye. For an effect of metallic relief, old Italian bronze or gold will combine well.

Where light colored woods are used, ivory tints, grays, and old rose of modified color will harmonize, and silver or gold may be used in metal ornamentation. Empire green, ivory tints, and old rose are appropriate with rosewood, and rich gold, yellow, and bright reds

combine well with ebony. White woods should have a combination of the light tints of ochre and blue or green, softened with raw umber. Delicate light blue shades, or pink and gold blend satisfactorily with enamel or ivory white finish. Walnut, being dark, requires the old blues and reds, with deep yellows,

evolution of the cellar is an interesting study in the slow development of human intelligence. It was devised originally simply as a subterranean, frost-proof pit or cave, under the house, in which could be stored first wines and later apples, potatoes, cabbages and other perishable fruits, together with milk, butter and



SECOND FLOOR PLAN

or gold, and with mahogany furniture deep olive greens or rich deep reds should be used, and the metal ornaments should be rich gold.

From Cellar to Basement

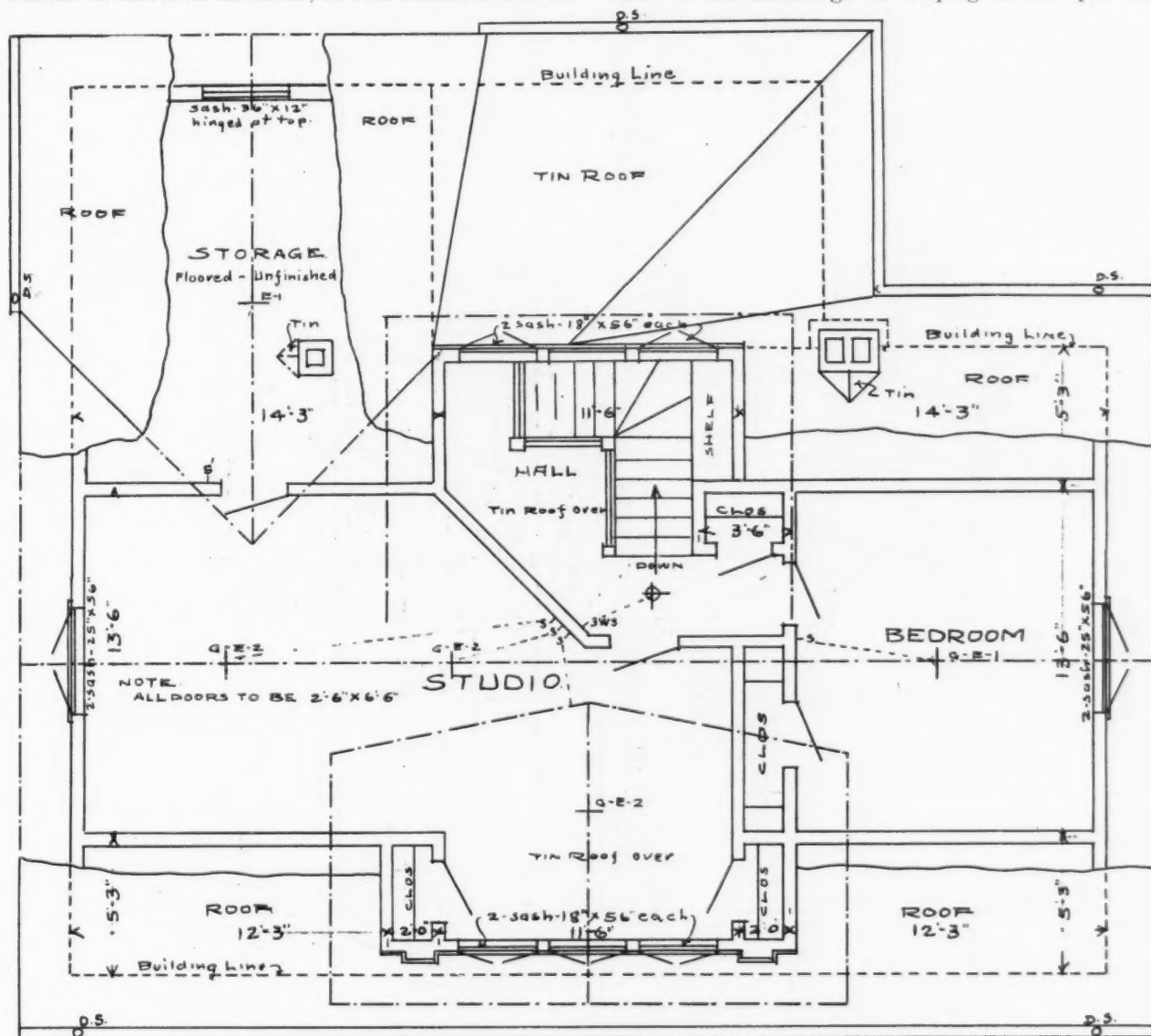
A warm, dry cellar is literally and actually the foundation of a warm, dry, well ventilated house. The

cheese. Next it was utilized when the absurd insufficiency of stoves and fireplaces for heating purposes was recognized, as a convenient place to put the furnace. Then it was raised above the ground to make the furnace draw better, and lighted and ventilated, until now it has become one of the most important sections of the house from a sanitary point of view.

It should be cleaned, lighted, heated and ventilated, winter and summer, as carefully and scrupulously as any other part of the house. When this is done, we are rid at one stroke, of dampness, with all its well-known rheumatic, tuberculous and other disease-breeding tendencies; of bad smells from decaying vegetables, accumulations of dirt in dark corners, leakage of sewer and other pipes, which are now in plain sight instead of buried in the earth; of cold floors and all the

Porches for Sleeping in Colorado

Sleeping out of doors has become an established custom in Colorado Springs, Colo. Nearly 40 per cent of the houses in that city have, in some form or other, one or more sleeping porches, a unique addition which has come as an outgrowth of this outdoor sleeping custom. It was in the days of overland travel on the old Santa Fé trail, that attention was first drawn to the advantage of sleeping in the open air.



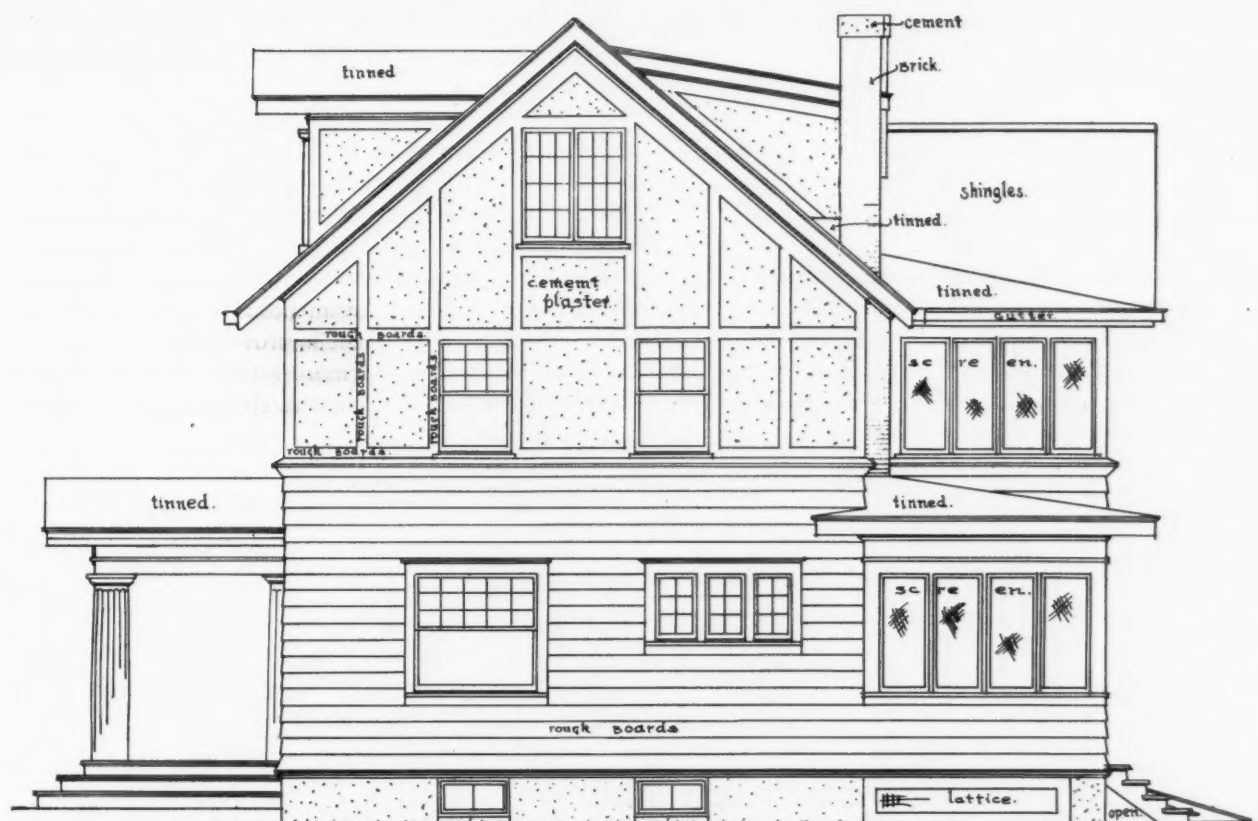
THIRD FLOOR AND ROOF PLAN

injurious effects which come from dampness and moist decay all through the house.

The complaint that heating the cellar has spoiled its use for storage purposes is simply a proof of its advantages. Nothing could be more utterly unsanitary in this twentieth century than to permit vegetables, cheese, fruits and milk to be piled together in dark bins and adjoining compartments, nibbled at and raced over by rats, mice and cockroaches, imparting the odors of decay from cabbages and rotting apples to milk, cream and cheese and sending their combined aroma **streaming** constantly upward through the house.

It was noticed that members of the party who left the east in poor health began to pick up in health and spirits as the result of the outdoor life.

The sleeping porch originated in Colorado Springs more than twenty-five years ago, when pioneer physicians began advising patients to sleep out of doors. At first a cot was moved out on the porch every night, and beside it was erected a wind break. From this has been evolved the present day sleeping porch, equipped with electric lights and electric bed-warming pans, made comfortable with the best of furniture, easily accessible to the bath or dressing-room, and



SIDE ELEVATION



SIDE ELEVATION

they sleep indoor, even if their bed room windows are wide open, and that they are devoid of that languor which is the natural product of poorly ventilated sleeping rooms.

Plans for new houses in Colorado Springs, whether for five-room cottages or for costly mansions, seldom leave out provision for a sleeping porch.

Gas as a Domestic Illuminant

While electricity has permanently driven out gas as an illuminant from large commercial buildings, gas illumination still maintains its supremacy for domestic use. The reason for this division lies principally in the conditions of supply of the illumination produced.

holder being charged the highest retail price, which renders electric light very much more expensive than gas illumination.

Furthermore, gas at its present price, is coming into general use for cooking and heating, and its combined use for heat and light makes the householder the principal customer of the gas company, and therefore entitled to the most favorable rates. With the comparatively few light-sources required in the dwelling house the question of convenience is of correspondingly small amount. The recent improvements in the shape of inverted burners and more artistic accessories also have kept it fairly on a par with electric light in respect to appearance.



REAR ELEVATION

In commercial buildings heat and power are as important necessities as light, the former even more so. The generation of electric current may be considered in a way a by-product of the heating; the mere matter of cost, therefore, which in other cases gives gas the lead, does not maintain in the case of the large private electric light installations, and even where the current is supplied from an outside source, the convenience of having it on hand for elevator and other power purposes, and the readiness with which the electric conduits can be run, give electricity undoubted advantages over gas.

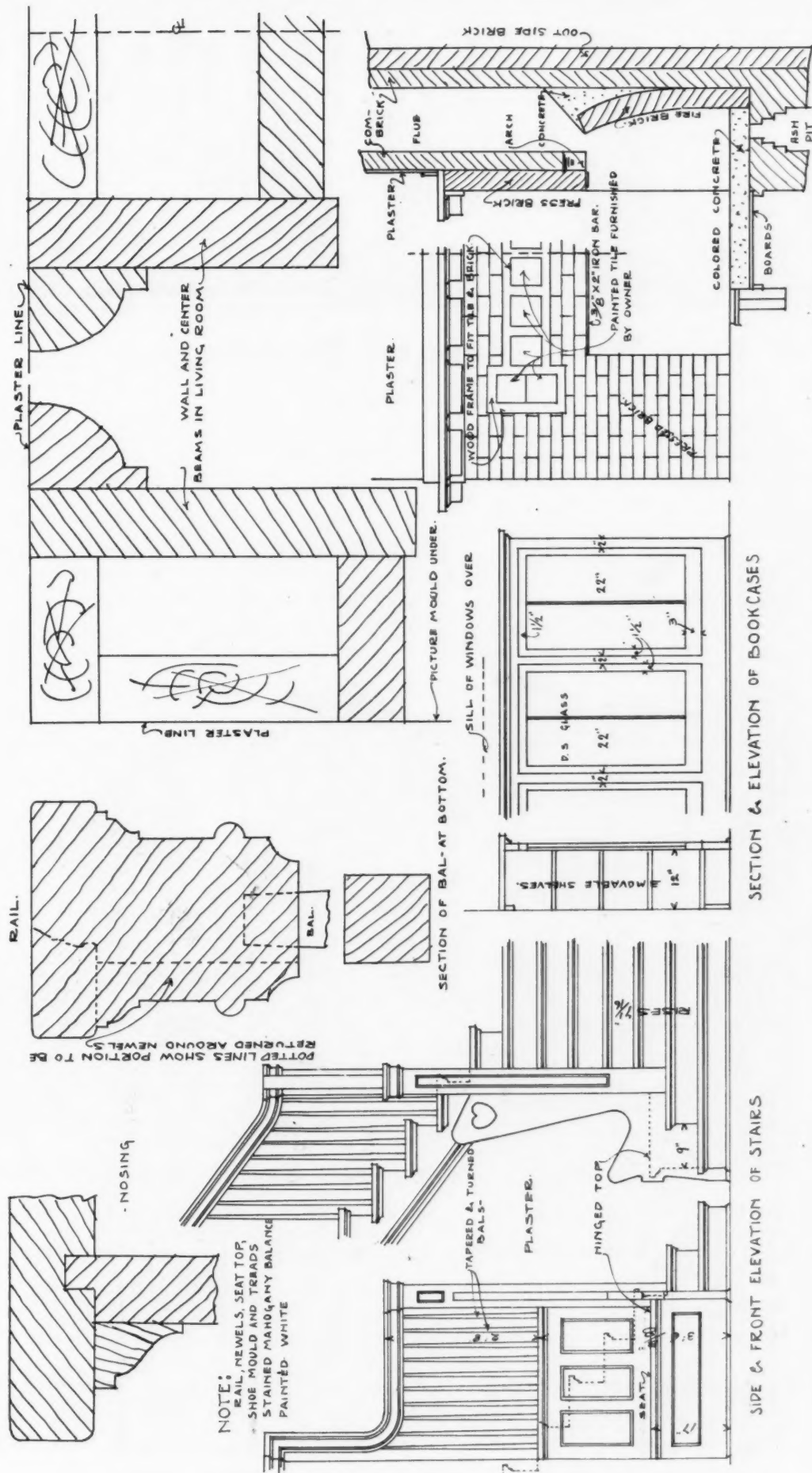
On the other hand, for domestic use, the small quantity of current consumed, and the very irregular use of it for lighting purposes, necessitates the house-

In quality of illumination, there is actually nothing to choose between the two. A perfectly white light is entirely unnecessary in the home; in fact, it is not uncommon to use tinted globes to give additional warmth and color.

Company inspection of gas piping in new buildings is an established feature of the gas business in this country, and as the men doing this work come in direct contact with architects and builders, they can be of great service towards the solution of the problem of better gas illumination.

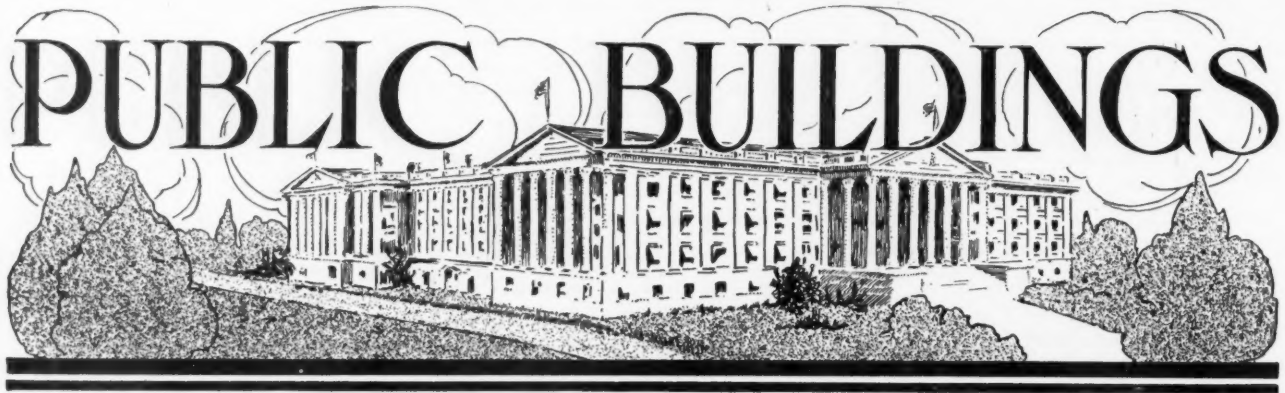
Pat—An' what is a chafin'-dish?

Mike—Whisht! It's a fryin'-pan that's got into society.



HALF ELEVATION & SECTION OF FIRE PLACE.

DETAILS OF INTERIOR FINISH



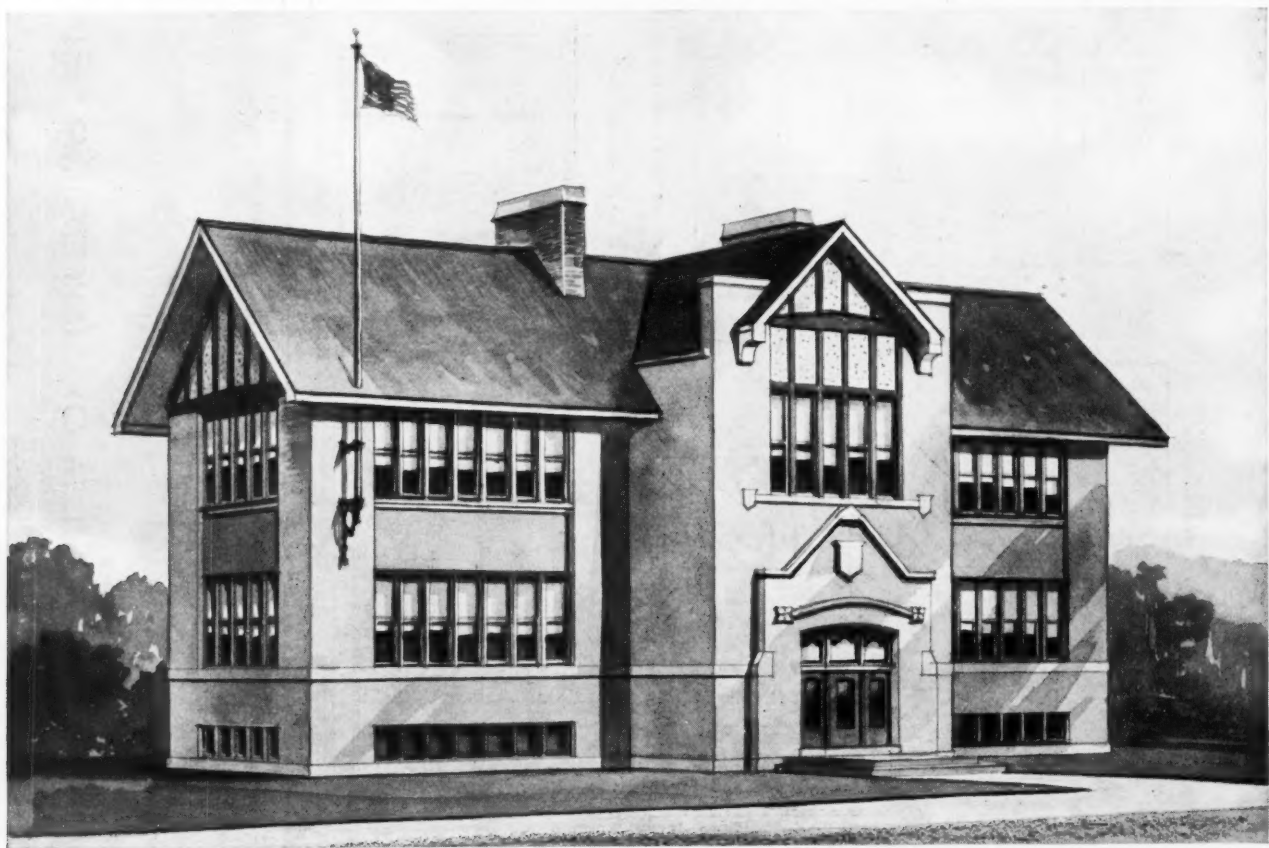
Two Well-Planned Buildings

PERSPECTIVE AND PLANS OF A VERY ATTRACTIVE, WELL-DESIGNED FOUR-ROOM SCHOOL BUILDING
AND OF A BAPTIST CHURCH

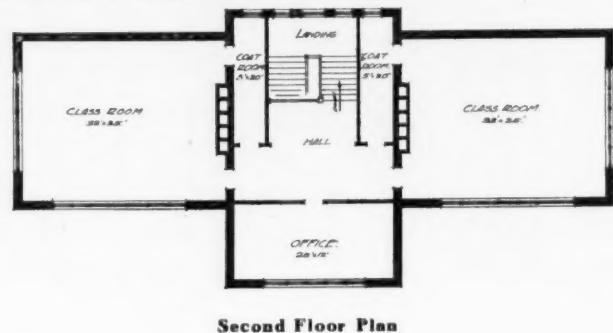
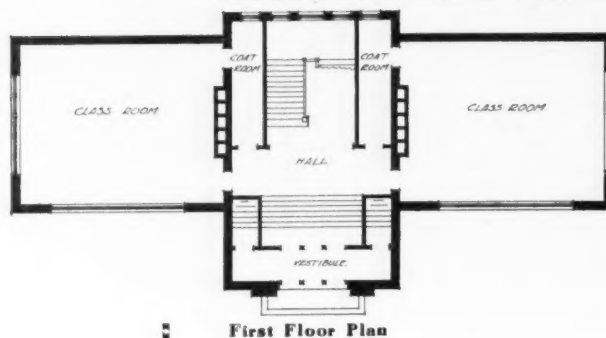
THE school building shown herewith is a recent design by Geo. W. Ashby, architect. It is considered one of the best of his work along this

line of small or medium-sized village schools.

This building is designed in the Elizabethan style, a very pleasing yet striking use of stucco and exposed



Four-Room School Building of Distinctive Design, G. W. Ashby, Chicago, Architect

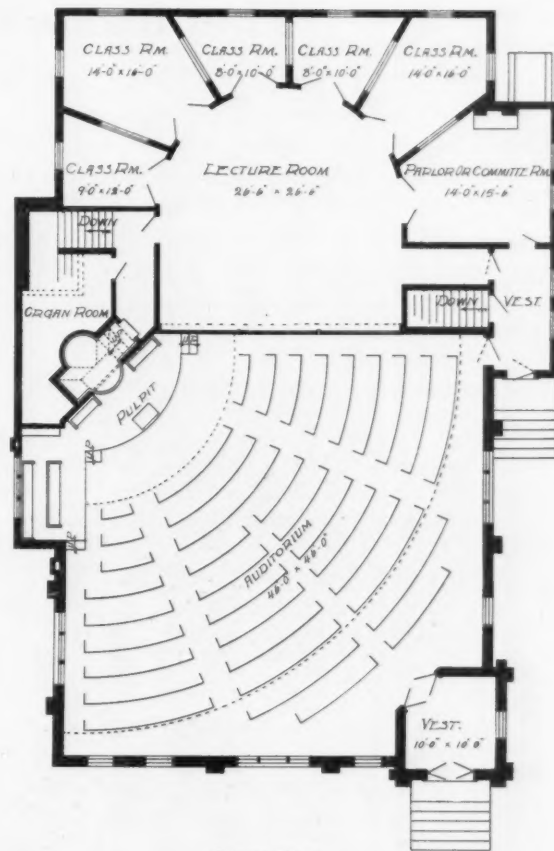


timber work having been used. The grouping of the windows carries out the idea of this style also. In a building of this kind all the pupils are certain to have plenty of light and air. The arrangement of the rooms assures an easy-running school with no congestion nor crowding.

The exterior material of this building is brick, both for walls and trimmings. Cement plaster on metal lath is used in the gables. The roof is slate.

The outside dimensions of the Baptist church building are 60 by 84 feet. The basement is 9 feet high, the foundation being of coursed stone, rock faced. The trimming stone is Indiana limestone, sawed and planed. The brick is rock face, dark buff, laid in red mortar. The roof is slate laid over asbestos roofing felt.

The main auditorium-room is 48 by 48 feet and has a ceiling 16 feet high at walls and arching up to a center height of 24 feet 6 inches. The basement includes a primary Sunday school room, two toilet-rooms, kitchen, cloak-rooms and heater-room. The heating system is steam. The plastering is white sand finish, which is the best for decorating. The entire cost of this building, including pews, is to be \$11,785. It was designed and is being built by J. B. Martin, at East Liverpool, Ohio.



Floor Plan



New Baptist Church at East Liverpool, Ohio. Designed and Built by J. B. Martin

The Revival of the Colonial

By J. M. Kane

A REVIVAL of the Colonial style of architecture has been very much in evidence of late years, both in new houses and in the remodeling of others. And justly so, for in beauty of design and outline these houses have no equal. Neither can any style of house surpass them for utility and convenience. They provide excellent light and air to each one of their rooms, which are usually of goodly dimensions.



Graceful and Dignified Colonial Front

Of all our homes there are none which appeal so strongly to us as the Colonial. They are purely American, having been developed in Colonial times from classic models; hence the name, Colonial. Most of them of any pretensions have a large central hall running through from front to rear, with a spacious stair leading up, either in one long flight, or with two or more landings; still others have windows at top and bottom.

Some of the more expensive Colonial homes have



Remodeled in the Colonial Style to Good Effect

fireplaces of brick or cobblestone laid up as they come from the fields, or with broken faces. This latter way makes a most artistic finish, especially when such a fireplace is surmounted by a massive oak mantel and is flanked by seats on either side. When a fire of dry logs is burning it makes a most comfortable and inviting place to receive visitors, or for a family gathering on a cold winter's evening. Happy the man who has such a place to meet his friends and family and the wherewith to keep it up! Who would exchange it for a palace with all its false glitter and show?

Opening out of the central hall are usually a living-room, library and dining-room. Sometimes these rooms have beamed ceilings and the side walls of the dining rooms are paneled up to the wide plate rail. The interior finish throughout the room is done in dark oak or cypress, sometimes in mahogany. A most effective finish for such a room is white enamel.

Among the most important of the good points of the Colonial style is its solidity and freedom from the



Example of Colonial Remodeling

constant repairs, so much in evidence where the more flashy styles are built.

The illustrations are examples of the Colonial in one of our prosperous northern New York cities. Two have been remodeled, the originals having been large two-story square houses.



It is admitted that no shop owner has a moral right to recklessly imperil the life and limb of employees. Neither has an employee a right to imperil himself through a spirit of recklessness or carelessness, yet many of them do. The question is, how are we to prevent it?

CORRESPONDENCE



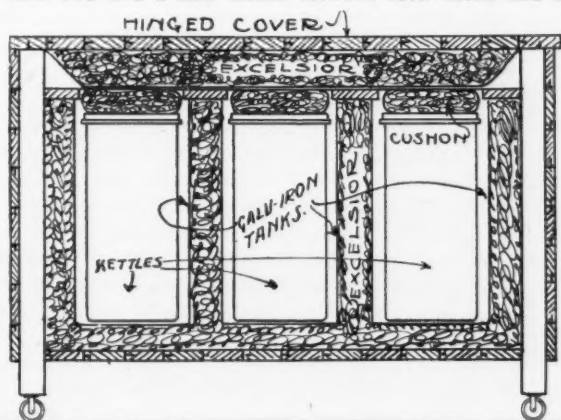
How to Make a Fireless Cooker

To the Editor:

Chicago, Ill.

In your November issue Mr. Chas. E. Otto asks for information, how to build a fireless cooker.

First get your kettles, and I would suggest three enameled ones 4, 6 and 8-quart respectively, with lids. Next make a box with a removable bottom. The box should be large enough so that when the kettles are set in it there will be at least two and a half inches between each kettle and also



between the inside of the box and the kettles. Next cut a $\frac{7}{8}$ -inch board to exactly fit inside of the top of the box, cut three holes in this board $\frac{3}{4}$ of an inch larger than the widest place on each kettle. Now have three galvanized-iron tanks made to exactly fit inside of each hole with a flat bottom. Make the tanks two inches deeper than the kettles; and fasten the board in the box flush with the top edge. Now turn the box upside down and unscrew the bottom, and pack the space around the tanks with excelsior. Fill it up so that the bottom will have to be forced on; be sure and pack very tight. Next turn the box over and fit on either one large lid for the whole top or three smaller ones, one for each kettle. Fix a clasp of some kind to lock them tight. Make three round cushions the size of the tanks and about two inches thick to put on top of the kettles and you have a fireless cooker complete. It would be well to put a 2 by 2-inch post in each corner of the box and let them extend below the bottom of the box about one inch and put on casters. You can make the box plain or fancy as desired.

CHAS. V. KELLY.

To Develop the Hip for a Bell Roof

To the Editor:

Rochester, N. H.

Please give in the next number of your magazine, a diagram and explanation of method for obtaining curve of the hip and common rafters for a bell-shaped roof for a square tower, similar to the sketch enclosed. Would like a rule that will apply to an octagon tower. ERNEST S. GOODWIN.

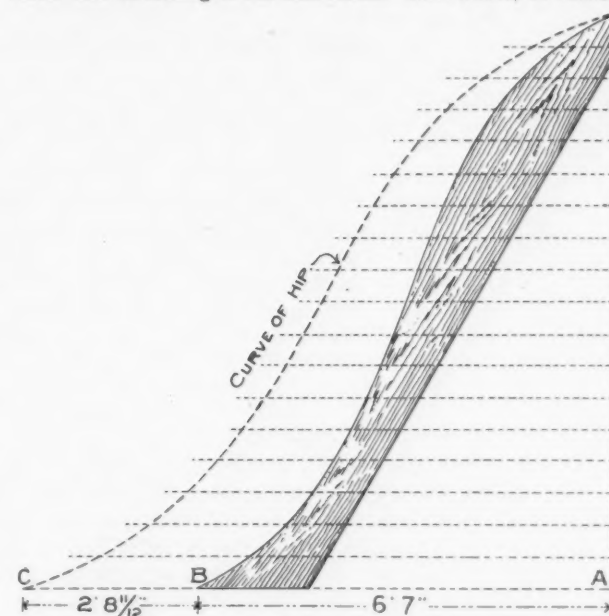
Answer: This question has been answered many times, even as late as the November number, where on page 233, in

Joseph P. Batte's question of "How to Develop Corner Brackets," the question is fully answered, though applied to a curved bracket. It should be remembered that the shape of the curve makes no difference as the principle applies to all alike; but like many other framing problems there are different ways of illustrating the subject.

As this furnishes an exceptionally good study, and as there are many subscribers that have not had the advantage of back numbers, we will illustrate it again. However, in doing so, we cannot add anything to the article above referred to. But, as we have said before, there are different ways of solving the problem, it is simply a question of which way suits the individual taste best.

The accompanying illustration shows a very good way of arriving at the shape of the hip, as follows:

Lay off the desired shape of the common rafter full size, with run and rise, as shown in the illustration. Now, since the run of the hip for a square-cornered building must have a gain of $\frac{5}{12}$ over that for the corresponding common rafter, it is just the same as taking hold of the foot of the common rafter and stretching it out that much. This would, of course,



add to the length of the rafter, and in case of a curved rafter, it must be elongated to coincide with that of the common rafter. This may be done by laying off a number of lines parallel to the run, as shown in the illustration, and by measuring these lines, as from A to B, setting off $\frac{5}{12}$ of their respective lengths to the left of the curve, as from B to C and check. After all of the lines have been thus measured, run an off-hand curve through the checks and the proper curve will be formed. In other words, if the line A B is 6 feet 7 inches long, add 5 inches for each foot and $\frac{5}{12}$ inch for each inch for the fraction of the foot. Thus for 6 feet, it would be 5 times 6 equals 30 inches, and for the 7

inches it would be 5 times 7 equals $35/12$ inches, or $2\ 11/12$ inches; this added to 30 would be $32\ 11/12$ inches, or the distance between B and C. Proceed in like manner for the other lines. The backing line on the side of the hip may be found by setting back one-half of the thickness of the hip from the curve on the parallel lines.

Proceed in the same manner for the octagon hip, but in this the gain is only $1/12$ over that of the common rafter, and the backing line is found by setting off $5/12$ the thickness of the hip.

A. W. Woods.



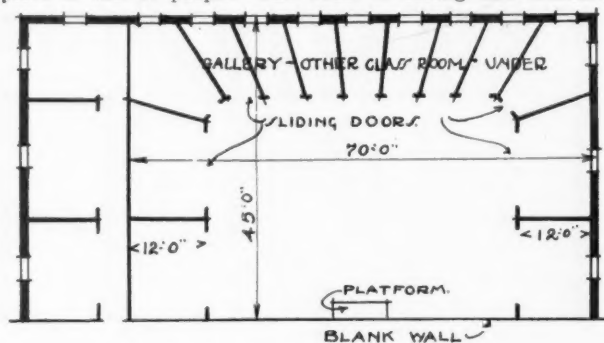
How Can the Acoustics Be Improved?

To the Editor:

Galt, Ont.

You are answering many interesting questions in the columns of the AMERICAN CARPENTER AND BUILDER. Would be pleased if you could give me some information, how to deal with the following difficulty.

We built a large stone Sunday school hall last year. We are disappointed in the acoustic properties of the auditorium. We can't hear well what is said from the platform unless the place is full of people. The room is oblong and measures



CHURCH HERE.

about 70 by 45 feet and is about 40 feet high from the floor to segment ceiling. A gallery runs around both ends and one side of the room. Class-rooms are formed in the gallery and underneath, with sliding doors in front of rooms on main floor.

The other side of room is a straight blank wall; in front of this the speaker stands on a small platform and can see into each room. The architect put windows on side of building above gallery roof to give light; by so doing the ceiling was made too high we think, and there is an echo. Our architect was an experienced man, and yet we are disappointed. When we sit in front of the speaker we can hear pretty well, when we get off to one side, we can't catch what he says so well. What can we do to overcome this trouble?

M. R. D.

Answer: Acoustics in architecture is a subject concerning which authorities differ to such an extent as to bewilder the student. The reason is this: authorities are in most instances theorists, not only in this but on most subjects; practice often demonstrates the utter absurdity of even accepted theory.

Experience has proved that good acoustic properties depend as much on the knowledge of the various materials entering into the construction and finishing of an auditorium as on the proportions and contour of same.

It is impossible to lay down any rules as to proportion, size or materials to be used in securing a perfect auditorium; in some instances the hardest reflecting surface may be necessary, such as smooth hard cement plaster, in others rough, soft, porous plaster. The steel ceiling may be essential, or a serious damage; it may want space back of it, or require felt deafening. In some instances it may be necessary to construct ceiling and walls in panels of wood, those most remote being thinner and of the more easily excited surfaces.

The shape of the ceiling or rear wall may be such as to

reflect the sound directly back to the phonic center. This is a most disastrous fault, making speaking very difficult, the words coming from the speaker's mouth meeting the reflection of preceding words, making it almost impossible to distinguish them.

In a large misproportioned auditorium remedial measures such as sounding boards, stretched wires or heavy curtains may be warranted. These only tend to neutralize bad results and do not remedy defects, no rule can be given for the location, number or tension of the wires. This can only be determined by experiment.

EDITOR.



Good Advice for Foremen

To the Editor:

Omaha, Neb.

In answer to Mr. Worm in the November number I would say that I have had years of experience in handling men on the job and it is sometimes a difficult problem. It is more difficult to handle men to advantage on a small job than on a large job. To begin with don't set two men at work on things where only one man is needed to do the work, for it will be a waste of time. There are enough places where two men are needed. Then if your men are not all of the best, select the best for a leader and instruct him to take so and so with him and go and do the part you want them to do. If it is heavy work it might be all right to have three men. For sheathing or siding one man by himself is best for the contractor's pocketbook.

It is not worth while to pay any attention to the grumbling of the men. Of course, they should be fairly treated and treated right, of course; but it sometimes happens that someone is jealous because he was not selected for foreman. If so let him pout it out; then maybe he'll feel better.

If the foreman does what is right he has nothing to fear from the contractor because of what some of the men may say. It is a very poor policy for men to be running to the contractor about the work. The contractor will generally select the one he thinks best suited for foreman and the rest should attend to their work without being meddlesome.

I. P. HICKS.

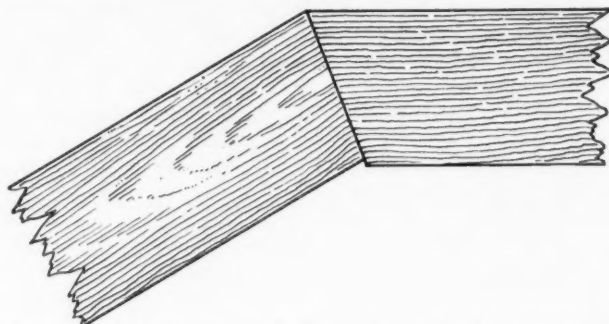


Top Cut of Truss Again

To the Editor:

Des Moines, Iowa.

I think Charles Gray's method of top cut of truss, as given in the October number will bear criticism, as it will plainly be seen that the method he advocates will not correctly miter; that is, so that both the upper and lower edges of the brace and straining beam will member. Otherwise, the joint will



show up like the enclosed illustration and the steeper the brace the more pronounced the offset on the lower side will be. The true miter must necessarily be at the bisecting line of the angle or at the half way place between the two members and to get this, the same figures on the square will give the cut for both members; the thing that Mr. Gray's method will not do. Therefore, the rule that Mr. Gray refers to as being perpetuated by some authors of books, is about as near correct as the one he would have us adopt as the sure thing.

BILLY BOY.

Construction for Small Ice House

To the Editor:

South Bend, Ind.

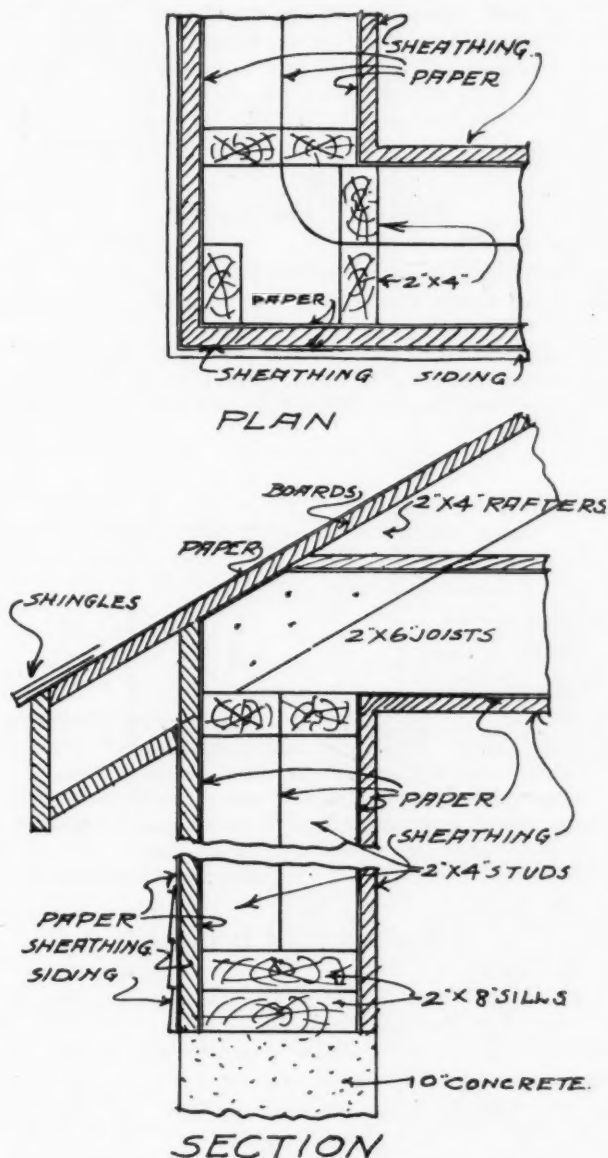
We are planning to build an ice house for a Y. M. C. A. summer camp. We want to build it on the side of a hill and large enough for three months use. We figure that a house 14 by 16 and 10 or 12 feet high will be about right.

We are not sure about the construction of the house. The bank is quite steep and we wish to have the front at the bottom and the back cut into the hill as shown by enclosed sketch.

Will you kindly advise us if this is practical, and if the ice will keep well this way? If you have any suggestions we would be thankful to receive them.

INDIANA LUMBER AND MANUFACTURING COMPANY.

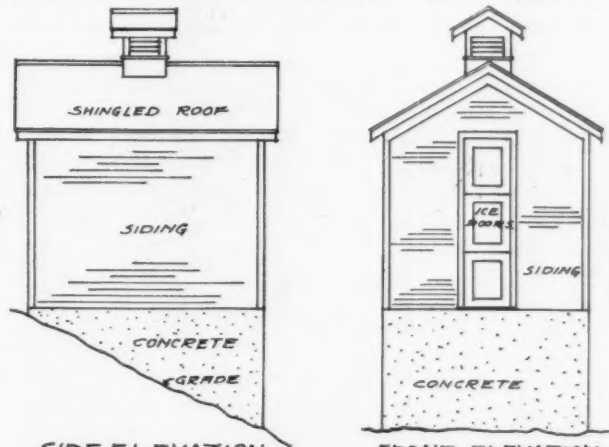
Answer: The concrete foundation should have a course of tiling around with cross tile connecting with the outside tile and all emptying into one outlet through the lower part of the front. Inside, the concrete wall should be filled with cinders to within one foot of the top. Or if the side hill is very steep so that the ice storage is to be largely within the excavated space and surrounded by the concrete wall, a layer



of cinders ten inches thick should be laid down. Only coarse cinders with all ashes removed should be used. The upper foot of filling should be of white pine sawdust.

The upper walls rest on a double 2 by 8 foot sill and are

made of two rows of 2 by 4 foot studs set 16 O. C. with a layer of building paper between them and also between the studs and the sheathing which is used both inside and outside. The outside should be then papered again and sided. The ceiling should be double boarded and papered; and paper should be laid between the roof boards and shingles. Care



should be taken to make all joints in the paper as tight as possible.

The doors are to be fastened in front like refrigerator doors and are to be built like the sides of the house with air spaces and made to fit tight in the jambs. Doors and frames must be made of kiln-dried material. There is no floor and the ice rests directly on the sawdust filling.

A platform can be provided in the front of the door with steps leading up to same. A vent is provided on the roof to keep the air circulating in the attic.

EDITOR.

Now He Feels Better

To the Editor:

Exira, Iowa.

In the February *AMERICAN CARPENTER AND BUILDER*, Mr. R. L. Ricks gave a problem called "A Sticker," and wanted a mathematical solution independent of the steel square. In the March number the problem was solved by arithmetic, algebra and trigonometry, the solution by arithmetic being given by myself.

In the August number there was an article by John Stillians called "He Doesn't Like Formulas," in which he asks, "Why is it that those who know how to do things won't or can't impart the information in a manner to inform?" and "Why can't they give it by plain arithmetic?" If Mr. Ricks had asked simply for an answer to his problem or an answer by use of the steel square, that would have been different; but he did not! He asked for a solution independent of the steel square and the answers were given that way.

As to the "plain arithmetic" and "manner to inform" part, what does Mr. Stillians call plain arithmetic, if this solution in the March number isn't plain arithmetic? I don't know how you would impart information in a "manner to inform" if a man who understands arithmetic at all doesn't understand this solution! Mr. Stillians also says "I did not see Mr. Ricks' request for the solution of this problem?"

Now, I believe, before giving my opinion as to whether the answer to a problem was correct or not or given in the right manner, I should want to see the problem.

As the answer was given as requested I feel it my duty to answer Mr. Stillians' article.

Since the *AMERICAN CARPENTER AND BUILDER* is a genuine carpenter's paper I agree with Mr. Stillians and think that all answers to questions should be given in a practical carpenter's way, if possible, and not requested otherwise. All success to the *AMERICAN CARPENTER AND BUILDER*!

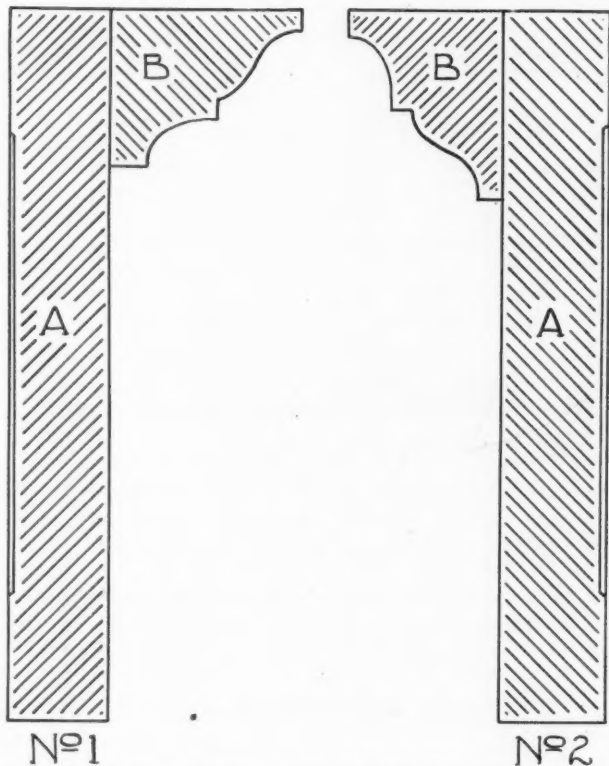
L. A. PETERMAN.

How Cap Mold Should Go On

To the Editor:

Royal Oak, Mich.

I was a charter member of the AMERICAN CARPENTER AND BUILDER family up till last spring when I allowed my subscription to expire on account of sickness. Now I wish at this time to ask for your decision in regard to a question which has come up here, as to the proper way to put on a



certain cap mold. Most, if not all, the carpenters here put it on contrary to the way which I believe to be right; and while I am on the minority side I shall continue to maintain that I am on the right side.

Mill-work catalogs show the mold put on my way.

I enclose a sketch showing the two ways of using the mold. Will you kindly return this sketch and say which way is the proper one?

CHARLES C. ALGER.

Answer: No. 1 shows the way this mold should be put on. The cyma recta curve is the "crown" of this molding and should be at the top.

EDITOR.

Likes "Hot Shot"

To the Editor:

St. Ansar, Iowa.

I read the correspondence column in the AMERICAN CARPENTER AND BUILDER with a great deal of interest; and as an interested party I wish to say that P. D. G's. "hot shot" is very good. He hit the nail where all good carpenters hit it, namely; on the head: In the November number Messrs. Schneider and Talbot settled the handspike problem—each his own way. If the editor will sacrifice the space, permit me to offer the following solution of the problem though it comes at a late hour: The law of the lever applies, and may be stated thus: If two men carry a weight on a stick between them, each man will carry one-half of the weight if it be balanced at the center of the stick; but if the weight is not at the center of the stick, then the part carried by each man will be inversely proportional to the distance the weight is placed from his end of the stick. To illustrate: Let the stick be 10 feet long. Then if the weight be placed, say four feet from one end, the man at the end of the stick will carry $6/10$ of the weight, and the other $4/10$. In this particular case, if the

timber is homogeneous, the weight of the timber acts at the center for that is the center of gravity of the timber. The handspike must be so placed that the weight which it carries will be just twice as great as the weight carried by the man at the end of the timber. Hence, it must be placed only half as far from the center of the timber as the man at the end of the timber is from the center, that is, one-half of 15 feet, or seven and one-half feet from the center which will also be seven and one-half feet from the end of the timber.

H. HALVORSON.

Tightening a Belt

To the Editor:

Greenleaf, Oregon.

I was bothered some time ago by a 6-inch belt that I was compelled to put in place where the pulleys were boxed or enclosed on both sides. There was no chance on either end to have the belt off while lacing. I took four pieces of 2 by 4 one foot long. Laid two together, as though it was a 4 by 4. Bored a three-quarter-inch hole between the two, at each end, an inch from the end. Did the same with the others. Two five-eighths-inch bolts with thread cut for a foot, bolts two foot long, made the pull-up arrangement. By putting one of these rigs on each end of the belt, and bolting together with half-inch bolts, two to each one, and then putting in the long bolts on each side, I was able to tighten the belt as tight as could possibly be desired. Bolts were loosened, and the rig saved for another time. MARION P. WHEELER.

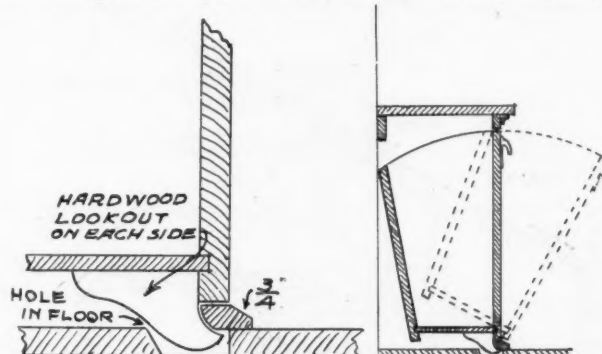
Gladly, If We Could

To the Editor:

Cross Plains, Wis.

I always read, with much interest the correspondence columns of the AMERICAN CARPENTER AND BUILDER, and am very thankful for the information thus obtained.

But I would be pleased to see all those "hand-spike" problems and arguments omitted. Instead, get more practical hints on general carpenter work, from our brother workmen.



As every little bit helps, I will enclose a sketch showing how to contrive and place a flour bin in a pantry. I am sure it will prove more satisfactory than the old way.

ADAM W. BACHMAYER.

Why We Mail It Rolled

To the Editor:

Crookston, Minn.

Why do you roll up the AMERICAN CARPENTER AND BUILDER now instead of mailing them flat?

ABLE NESS.

Answer: Up to within the last year, we mailed the AMERICAN CARPENTER AND BUILDER in large envelopes; but after giving them a thorough trial, we found that they did not carry well through the mails. Frequent complaints were made that the magazine reached its destination marred by having the backs torn, loosened, etc. By rolling them in wrappers they are more easily handled, and at the same time are better protected, especially as to the corners, than with the loose envelopes.

EDITOR.

A Useful Demonstration

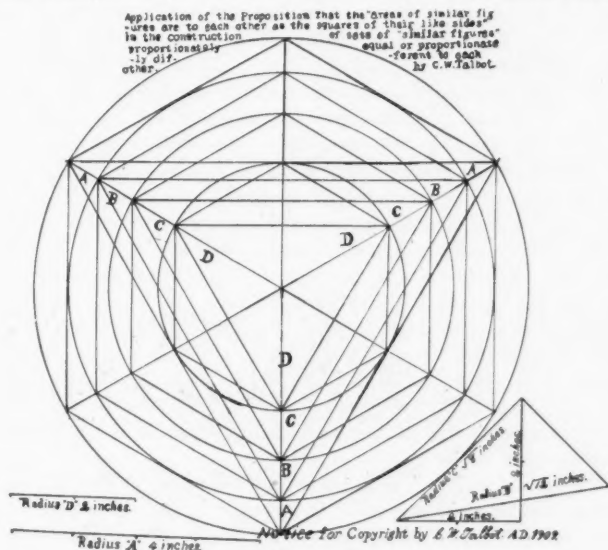
To the Editor:

Hanford, Cal.

The following solves Geo. Sadler's "Interesting Problem" of the November number:

Having a given polygon, circle, square or triangle and wishing to construct within the respective figure sets of similar figures, polygons, circles, squares or triangles proportionately decreasing, regularly, in any stated series, it will be found that the application of the fact that "areas of similar figures are to each other as the squares of their like sides," enables one to so construct rapidly and accurately such figures.

In the illustration submitted, we have the given circle "A," equilateral triangle "A," regular hexagon "A," and six isosceles triangles "A," within which we have constructed three



similar figures decreasing respectively by a magnitude of one-fourth the given figure, thus making the respective figures, including the given figure, of the magnitude of $4x$, $3x$, $2x$ and $1x$, respectively.

It is not necessary to know the area of the respective given figures, for the "x" representing the magnitude cancels out when set in proportion couplets; thus in the couplet " $4x$ is to $3x$," it will be same to say "4 is to 3 as the square of the radius of the given figure is to the square of the radius of the figure to be constructed." From this proportion we get for the radius of the first figure to be constructed the magnitude represented by the square root of 12. Proceeding, likewise, for obtaining second and third sought radii, we find them to be as shown in the margin of the diagram, the square root of 8 for the second sought radius, and the square root of 4 for the third sought; this being a perfect square its root is 2. It may be remarked, right here, that where the radius of the given figure is an "expressible" number in magnitude, so will the fourth be an expressible number.

As to what figures are similar figures, let a word be said. All circles, all squares, all polygons of the same number of sides and of which the respective angles are equal in magnitude and all triangles having their respective angles equal in magnitude are respectively similar figures, in their respective classes and when compared in their classes come within the rule, which is: "Similar figures are to each other as the squares of their like sides." This is the most useful proposition in geometrical mathematics.

C. W. TALBOT.

Which Way Is Right?

To the Editor:

Glenham, S. D.

I have been a subscriber to AMERICAN CARPENTER AND BUILDER two years now, and think it the best building paper

published. I am greatly interested in it, especially in the "Sticker" and question and answer department. I would suggest that one portion each month be used exclusively for questions and answers.

Now I have a question I would like to have settled by your paper. It is this:

Which is the proper way to trim window and door sills, to let the ends of the sills extend past the casings or to trim them off flush? I was taught to trim them off flush and have always followed that rule, but have been told that they should extend past as far as they come out in front.

To settle it we have decided to leave it to the readers of the AMERICAN CARPENTER AND BUILDER. Whichever way is right I want to follow, as that is my motto, "Do it right."

GEO. LEHNUT.

Top Cut for Truss

To the Editor:

Windher, Pa.

Brother Gray's answer or explanation of the sketch he gives in the October number is all right, but I would refer him to my explanation of the same problem in the June number, which is practically the same thing; but there are several ways to get the same result or to bisect the angle. Here they are: Referring to Charles Gray's sketch of a truss in the October number, take B C on blade and B E on tongue, tongue gives cut.

Again, take A B plus one-half of B E on blade, and one-half of B C on tongue, tongue gives cut.

Again, take A B plus A C on blade, and B C on tongue, tongue gives cut. So you see there are many ways to get the same results and all done with the steel square and pencil alone. I am a charter member and hope these few remarks will benefit at least some of my brothers in the trade.

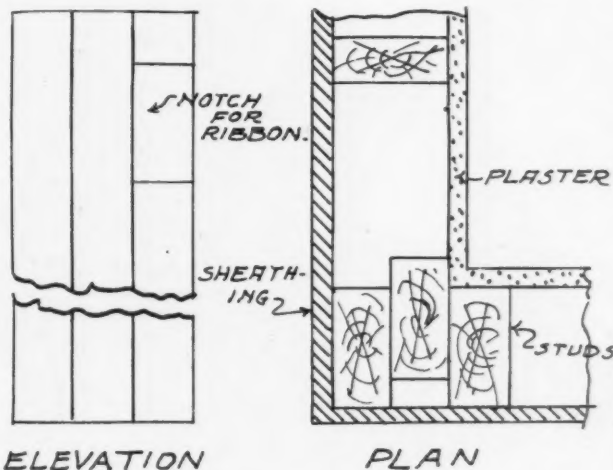
JOHN L. BRETH.

Good Corner Post for Houses

To the Editor:

Vancouver, B. C.

I am sending you a description of a really good corner post for frame houses, hoping same will prove itself useful to some of my brother carpenters. It consists of three 2 by 4 pieces, spiked firmly together, the center one standing out $1\frac{1}{2}$ inches past the two outer ones. The figure shows the eleva-



tion of the post and a cross section showing how it is framed in the wall.

The use of this post does away with the bother of backing up the corners for lathing, as will be seen. The notch for the ribbon need only be cut in the inside 2 by 4.

GEO. H. RIEVELEY.

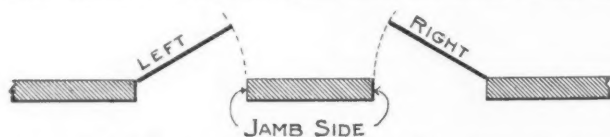
What Is the Hand of a Door?

To the Editor:

Crookston, Minn.

Will you please state through the columns of the AMERICAN CARPENTER AND BUILDER, with diagram, showing right and left hand doors, also right and left hand locks. Enclosed find sketch showing my idea of the question. ABLE NESS.

Answer: The above furnishes a question that is not at all clear, because a door that seems most convenient to use the



left hand from one side, changes to the right from the other. We find this explanation along with an illustration, in one of the leading hardware catalogs, as follows:

"The hand of a door is determined from the outside of a building, room, or closet." Now it seems that in their effort to make the subject clear, they have made hard work of it by adding the last clause, because the same lock will answer in either way—which is the main object sought. Then again, take a partition door between equally important rooms, how can it be "determined from the outside of the building."

A more simple way would be to reckon from the jamb side of the door; then it will always come right. The accompanying diagram is as per Mr. Ness' sketch and his version of it is correct. The locks are of course reckoned same as the door.

EDITOR.

A Clear Explanation

To the Editor:

Glen Easton, W. Va.

I have been much interested in the "handspike" problem so recently discussed in the AMERICAN CARPENTER AND BUILDER. I will send you a solution which I hope will be easily understood

Wherever the supports upon which the sill-rests are located, the products of the weights upon those supports, when mul-

tiplied by their respective distances from the center, will be equal. Now the sill in the problem is 30 feet long. Suppose it weighs 12 pounds per foot. Then weight of sill will be 360 pounds. The man at the end is to carry 120 pounds, his distance from center is 15 feet. 120 times 15 equals 1800. The weight on the handspike is 240 pounds. Then distance of handspike from center would be found by dividing 1800 by 240 which will give $7\frac{1}{2}$ feet, which also makes it $7\frac{1}{2}$ feet from end of sill. By this method, the location of the handspike can be found for any amount that it might be intended for it to carry.

I was much interested in Mr. Talbot's solution which is correct. I hope Mr. Schneider may be able to see through this method.

M. W. CROUCH.

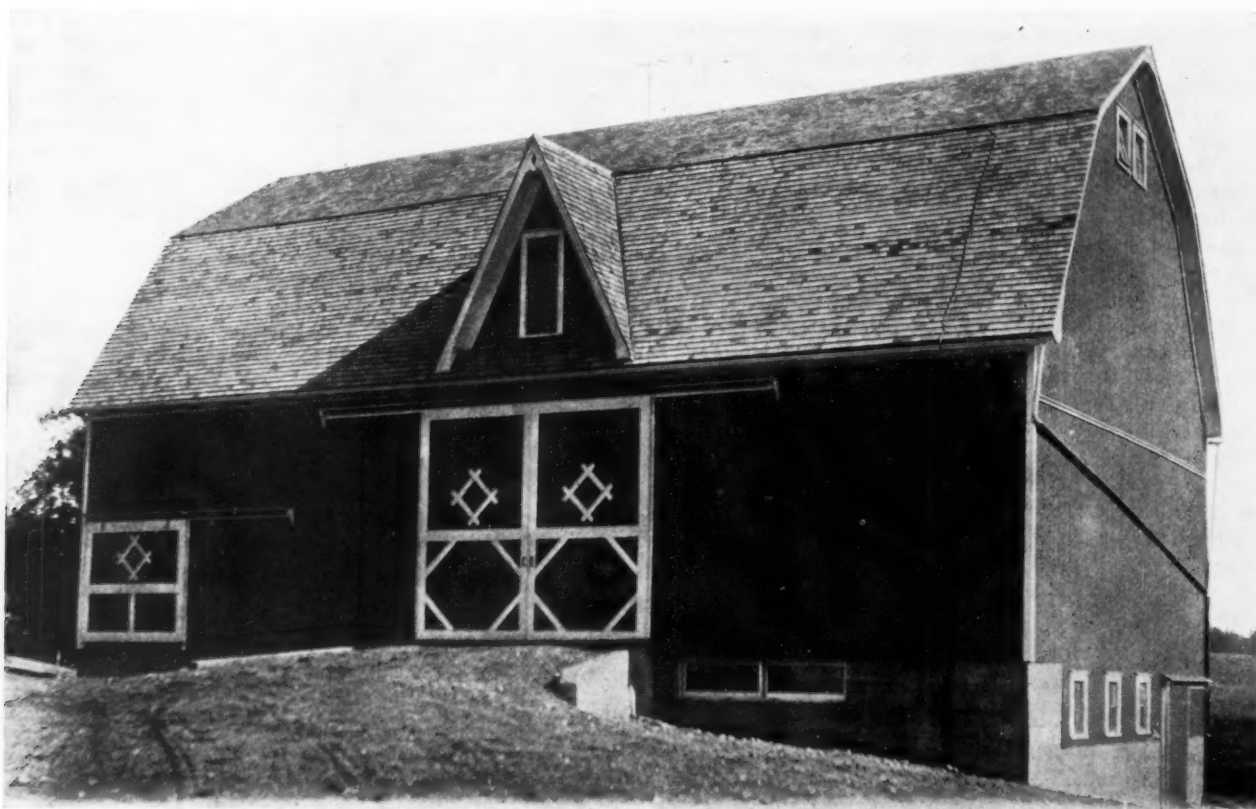
Well Finished Barn

To the Editor:

Highland, Mich.

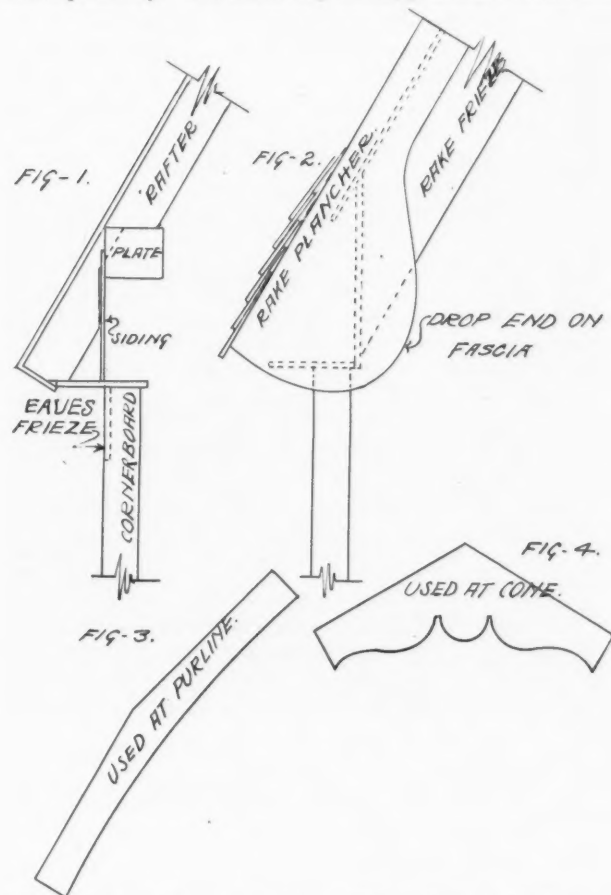
Here is the picture of a barn that I finished June 30th this year. It is said to be the best finished barn in this vicinity. The picture gives a very good idea of how it looks. It has a fine $8\frac{1}{2}$ -foot basement, opening to the south, with one horse stable door to east and one to south. The west end of the basement is finished for sheep, while through the center are stalls and stanchions for cows and young cattle, with alleys between. The barn is 36 by 60 feet with 14-foot drive floor. In the east end is a 20-foot bay. Across the south side of west end is a granary 12 by 26 feet, containing five large bins and alley leading to an outside door on west end of barn, where there is a platform from which grain can be loaded directly on wagons. The rest of the west end is floored over even with top of granary, under which is a place for storing farm tools.

There are a few barns here that have the sweep at the eaves, and are objectionable on account of snow lodging in the depression and remaining on the north side of the roof, thawing a little every day and keeping the roof soaked, sometimes for weeks. Others have only a fascia at the eaves, with plain box cornice on the ends. This makes a fine place for



birds to build nests under the eaves.

The owners of this barn wanted something that would not leave a place for either snow or birds to lodge. I devised the cornice illustrated by the drawings, which I think are self-explanatory. The fascia is 5 inches, plancher 6 inches and



frieze 8 inches in eaves cornice. This makes an inexpensive cornice and gives a barn a well-finished appearance. The pitch of outside roofs is 18 inches rise to one foot run, covering 15 feet, while the pitch of top roof is $7\frac{1}{2}$ inches rise to one foot run, covering 21 feet of barn. The dormer is 24 inch rise to 7 foot run and is 11 feet 4 inches wide on plate. The frame is heavy timbers throughout, mostly oak, and has purlin plates well braced with 6-foot run and 3-foot drop braces, which greatly stiffen a barn endwise.

ALBERT GONNE.

Rafter Cuts for Hip Roof

To the Editor: Detroit, Mich.

As there are so many inquiries regarding the cuts for the hip rafter, I submit a solution to the problem, which, if you think worthy of notice, I should like to see published in the AMERICAN CARPENTER AND BUILDER.

I purchase your journal each month at the news stand, and its contents are very interesting and highly instructive to me, especially the correspondence columns.

It is very easy to give a set of figures for making the several cuts for the hip roof; but in order to understand why such and such figures, taken on the square, will make the required cuts it is necessary to analyze the different parts of the given roof and be able to see what position and relation each member bears to all the other members. For that purpose, I offer three diagrams, showing how the cuts for any hip rafter may be obtained.

For the purpose of illustration we will take the problem of cutting a hip rafter for an "L" roof having two different pitches, one side having a run of 9 feet, the other a run of

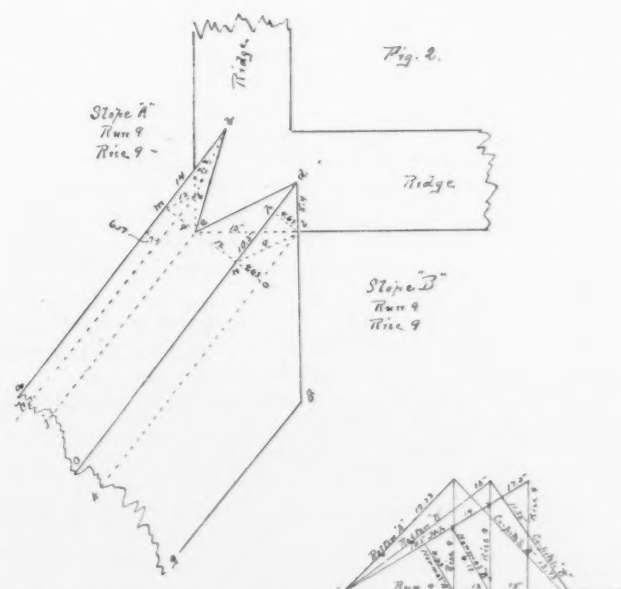
12 feet; both having a rise of 9 feet.

Many framers will tell you that the length of common rafter and tangent will make the top cross cut for the hip rafter. This is only true after the hip rafter has been "backed." Before the hip has been "backed" it forms a plane of its own and conforms to the slope of neither roof.

Fig. 1 exhibits a portion of the plan and is self-explanatory.

Fig. 2 is a sort of perspective view of the top end of the hip rafter, notched around the ridge pieces, and shows the relation of the different lines. The notched end instead of a pointed end is used in the sketch the better to study the relations. However, either cut may be made by using the figures which will be given later. The full lines a-b and c-d are the top edges of the rafter before being "backed," and b-e-d the notch cut to fit around the ridges. The dotted lines, h-i, j-e, k-l, would be the top edges after the hip is "backed." By a close observation it will be noticed that the dotted line m-n, being square across the rafter, must necessarily be level, and the lines i-e-l, being on the edge of the ridge, must also be level. If the rafter be cut on the lines i-m-n-l the cut would be a level cut and the lines e-n and n-l would be in proportion to the two "runs" of the roof, viz. 12 and 9. The line n-d is a length of the hip which would set over a run of 9. The line l-d is a rise of the hip corresponding to the run of 9.

The lines e-m and m-i, on the other side of the hip, are also in proportion to the two runs, but in inverse order. The



line m-b is a length of the hip which would set over a rise of 12, and i-b is its corresponding rise. It will be seen that the figures 10.5 (on the line n-d) and 12 (on the back of the rafter) will make the cut for the part of the notch on the "B" side of the roof, and the figures 14 (on the line m-b) and 9 (on the back of the rafter) will make the cut for the other side. If the rafter is to be cut pointed to set between two common rafters, instead of being notched, simply reverse the order of the figures.

The lines e-n and n-o are in proportion to the figures required to make the necessary bevel for "backing" the hip on this side. The line n-o is equal to p-l, which is a line normal to the hip at a run of 9, which is the run of the opposite roof "A," or the tangent of the roof "B." (On a hip roof over a square plan, the run of one roof is equal to the tangent of the other roof.) From this it will be seen that the figures necessary to "back" the hip on a certain side are the "run" of that side and a normal to the hips at a run equal to the tangent. These figures are simply proportional and for actual use must be diminished. If we have a rafter 2 inches wide on the back, one-half is 1 inch, and the figures 12 and 4.63 in Fig. 2 are in proportion as 1 is to .39. (.39 is $\frac{3}{8}$ nearly.) Then 1 inch on the back and $\frac{3}{8}$ inch down the side makes the "backing" for the slope "B." Fig. 2 is simply for the purpose of analysis, and after the relationship of the several parts is thoroughly understood is of no further use.

Fig. 3 gives all the lines and figures necessary to make all the cuts for hip roof given in the example, and by substituting the proper figures will cut any hip roof over a square plan. It may also be used for an oblique plan by imagining the opposite roof to have a run equal to the tangent of the side on which you are working.

On the same level line, set up the run, rise and pitch of both common rafters and the hip rafter. Draw normal lines from the hip to the intersection of the run and rise of each common rafter. Also draw lines square from the top end of each common rafter to the plate line, to represent their respective co-pitches. Mark the length on each line.

While a knowledge of square root would be a great help in determining the lengths of the several lines; still it is not strictly necessary. A careful use of the square and a sharp-pointed knife will give sufficiently accurate results. The figures in the diagram are left abstract for the purpose of using them either as inches or feet (as inches for use on the square in making the cuts and as feet for determining the total length of rafters).

The following schedules of figures, taken from Fig. 3, give all the cuts for a hip roof.

SCHEDULE OF CUTS FOR "A" SIDE OF ROOF

Common Rafter: Side cuts (run and rise), 9 by 9.

Hip Rafter: Side cuts (diagonal and rise), 15 by 9; pointed top (9/15 length and tangent "A"), 10.5 by 12 (mark by 10.5); notched top (12/15 length and tangent "B"), 14 by 9 (mark by 14); backing (run and normal "B"), 9 by 6.17.

Jack Rafters: Side cuts (run and rise), 9 by 9; top cuts (pitch and tangent), 12.73 by 12 (mark by 12.73).

Sheathing and Plancher: Face cuts (pitch and tangent), 12.73 by 12 (mark by 12); edge cuts (co-pitch and co-pitch tangent), 12.73 by 12 (mark by 12).

Facia (square with rafter): Face cuts (co-pitch and co-pitch tangent), 12.73 by 12 (mark by 12); edge cuts (pitch and tangent), 12.73 by 12 (mark by 12).

Note: This roof being of square pitch, the tangent and "co-pitch tangent" are equal.

SCHEDULE OF CUTS FOR "B" SIDE

Common Rafter: Side cuts (run and rise), 12 by 9.

Hip Rafter: Side cuts (diagonal and rise), 15 by 9; pointed top (12/15 length and tangent "B"), 14 by 9 (mark by 14); notched top (9/15 length and tangent "A"), 10.5 by 12 (mark by 10.5); backing (run and normal "A"), 12 by 4.63.

Jack Rafter: Side cuts (run and rise), 12 by 9; top cuts (pitch and tangent), 15 by 9 (mark by 15).

Sheathing and Plancher: Face cuts (pitch and tangent), 15 by 9 (mark by 9); edge cuts (co-pitch and co-pitch tangent), 11.25 by 5 $\frac{1}{16}$ (mark by 5 $\frac{1}{16}$).

Facia (square with rafter): Face cuts (co-pitch and co-pitch tangent), 11.25 by 5 $\frac{1}{16}$ (mark by 5 $\frac{1}{16}$); edge cuts (pitch and co-pitch tangent), 15 by 9 (mark by 9).

Note: This roof not being of square pitch, the tangent of

the co-pitch is in proportion to the tangent as the co-run is to the run. 5 $\frac{1}{16}$:9::6.75:12.)

It is well to get these terms and relations in the mind rather than the figures, for the terms bear the same relation on roofs of all pitches, while the figures vary.

In regard to Mr. Wood's "sticker" in cornice work, in the September issue, I should like to offer an alternative solution to that of the editor.

All the parts of the roofs above the plate intersect; why should not the parts below the plate? The only differences between the two roofs are the pitch and projection from the wall.

Leave the plates on the same level, cut off the rafter tails at the same level, and all members of the cornice will intersect without any trouble. The difference in projection will be hardly noticeable. The figures on the square for the face cut of the plancher are length of rafter and tangent (12 and 9 for the narrow roof and 12 $\frac{1}{4}$ by 8 for the wider roof). Mark by the tangent. (Tangent equals run of other roof.)

The edge cut of plancher is co-pitch and tangent (13 $\frac{1}{2}$ by 9 for the narrow roof and 12 $\frac{3}{4}$ by 8 for the wider roof); mark by the tangent. (Co-pitch is a line drawn square from the top end of the common rafter to the plate line.)

I hope I am not taking up too much space and that my humble efforts may be a benefit to some of your readers.

W. A. BURT.

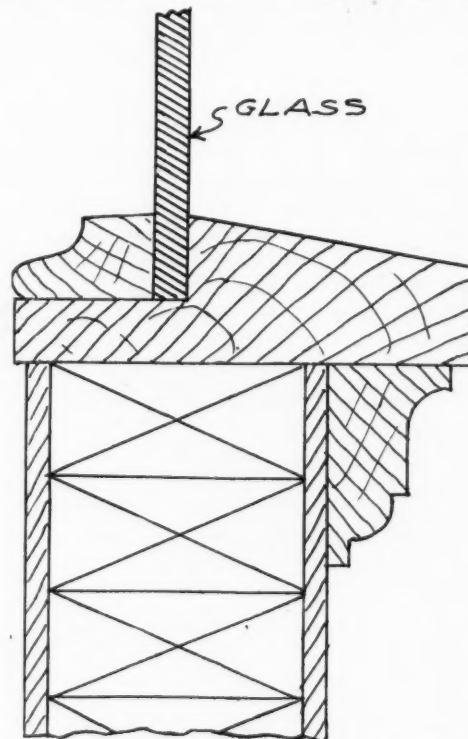
Good Construction for Veneered Sash Doors

To the Editor:

Cleveland, Ohio.

Enclosed you will find detail of how I make sills on doors, which I think will not only preserve the veneer on the lock-rails, but will in the end save money.

You will notice the sill going through the thickness of the



door, which will by no means let water down into the veneers. Notice also the extra molding below the sill. This not only makes a good substantial stool, but a very neat one.

I had so much trouble with the veneer coming off the lock rail by water from the glass going into the veneer; that I had to look for some remedy; so I hit upon this method and since then have no more trouble.

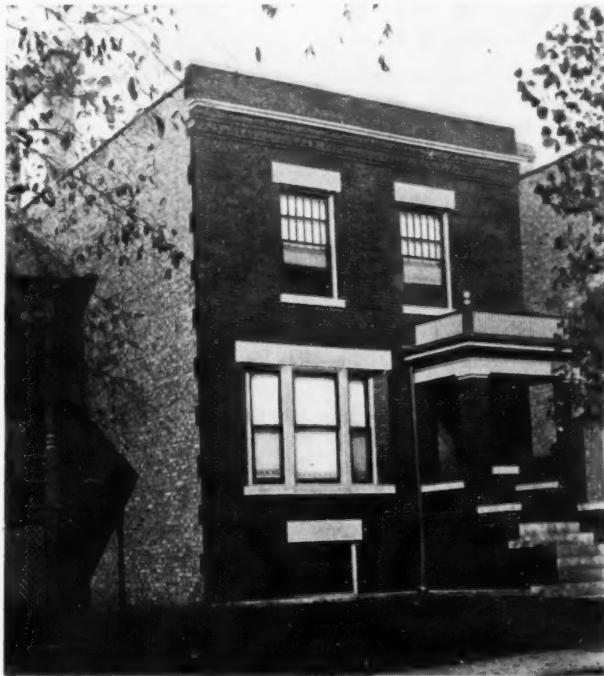
Jos. P. BATTES.

Typical City House

To the Editor:

Chicago, Ill.

The accompanying photo shows a brick and stone residence which I designed for Mr. Howard Prescott. It is located on Rhodes avenue, Chicago. It is what might be termed a typical



city house. It is simple and neat and is planned with no waste space; contains eight large rooms, well lighted. This building, constructed with all modern improvements, hardwood trim, bronzed hardware and electric light fixtures, cost \$3,300.

JOHN IRVING DORR.



Wisdom of Solomon

To the Editor:

Lakeview, Mich.

Referring to the discussion of the "hand-spike" proposition, and the contributions of Gentlemen Stillians, Talbot, Weatherby, Schneider and others, in your numbers of August, September, October and November:

First of all, permit me to commend the reading of this valuable magazine to every carpenter and builder in the land. We all gain valuable information in the great latitude of discussion of the interesting variety of mechanical questions permeating these pages. We are interested much by learning from others, and enormously in discovering their errors.

The "hand-spike" discussion reminds me of the dispute between A and B, as to whether a tub of water would weigh more with a fish in it. They agreed to leave it to the king, who at once commanded, "A, bring me a tub of water and a fish." "B, bring me a set of balance scales." To A and B he commanded, "Weigh the tub of water without the fish, and then weigh it with the fish." They then turned toward the king to hear his decision, who expelled them without further ceremony, saying, "You fools, you have answered the question yourselves." If Stillman and Schneider are in any doubt about where the hand-spike should be placed why do they not go into some hardware store, pick out a gas pipe, measure its length, weigh it, measure off one-fourth its length from one end, rest it on the scales at this pivotal point, with the other end supported by the finger, and discover whether or not this weight is two-thirds the whole weight of the pipe? If they will do this they will recede from their contentions without further invitation from Talbot. Mr. Schneider's statement in the November number, "The man at the end will carry as

many feet as the hand-spike is placed from the center," is erroneous, and is the common error very many have fallen into along the same line of reasoning. He utterly disregards the "rule of the lever," so familiarly known since the days of Archimedes, viz.: The distance from the fulcrum to the power, is to the distance from the fulcrum to the weight as the weight is to the power.

These men should pay more attention to the well-known law that the *distance from the weight* (center of the stick) one is lifting, determines the power he has over the weight.

As an author always sees more in his works than the average reader, so does Mr. Talbot see more in his ingenious draft in the November number than I do. Suppose two men at the end and five at the lever, then what about the draft?

Here is a rule that Gentlemen Schneider and Weatherby may apply, however many men, and howsoever distributed at the handspike and at the end:

"The weight of the stick in the center must be,
For there on a lever t'will balance, you see;
The man at the end, to make the thing just,
Is just twice as far from the weight as the rest."

If five men at the lever and one at the end, then, "The man at the end, to make the thing just, is five times as far from the weight as the rest," etc.

If seven men at the lever and three at the end, then, "The three at the end, to make the thing just, are seven-thirds as far from the weight as the rest."

Rule: Multiply one-half the length of the timber by the number of men at the end, and divide by the number of men at the handspike. The result is the distance the handspike must be placed from the center.

Here is a proposition involving the same law of mechanics:

A log of uniform density, 24 inches in diameter at one end, 36 inches in diameter at the other, 40 feet long, will balance horizontally, at some pivotal point. Determine this balancing point.

S. F. KENNEDY.



Classes of Levers

To the Editor:

Kenedy, Texas.

If you will allow the handspike question any more space in your paper I would like to offer an explanation of the principles involved and to give a simple rule for its solution.

Mr. Talbot has given the correct answer and is right in using the principle of the lever in its solution, but he is in error as to class of lever.

Levers are of three classes, as follows:

If the fulcrum is between the weight and power, the lever is of the first class.

If the weight is between the fulcrum and power, the lever is of the second class.

If the power is between the fulcrum and weight, the lever is of the third class.

Now the steel-yards is a lever of the first-class, whereas, the timber carried by three men and a hand-spike is a lever of the second class, with the fulcrum at end carried by one man, the weight at middle or balancing point of timber, and the power at hand-spike.

By applying the law of moment (weight multiplied by distance) we will have:

The power or weight at hand-spike multiplied by its distance from fulcrum must equal weight of timber at middle, or balancing point, multiplied by its distance from fulcrum. Therefore the product of the weight of timber and distance from center to fulcrum, divided by weight hand-spike is to carry will give the distance handspike should be placed from fulcrum at rear end.

I hope this will help clear up the hand-spike sticker. It has been an entertaining as well as instructive problem, and I am sure many of us readers have been benefited by it.

T. C. McCoy.

PRACTICAL TRADE APPLIANCES

"Ideal" Hardwood Floor Scraper

Among the many important labor-saving devices manufactured during the past few years, is a machine for scraping hardwood floors manufactured by T. L. Phillips, Aurora, Ill. This is the "Ideal" hardwood floor scraper.

There is no branch of the carpenter trade so laborious as scraping floors by hand.

The "Ideal" has several important features which makes it a superior article in its line. It is a high-grade machine in every respect.

The efficiency of a floor scraper depends greatly upon the firmness of the machine. The "Ideal" has much firmness and rigidity, does its work fast and eliminates the wavy appearance to the finished floor.

The "Ideal" will successfully scrape every square inch of floor in a room and will not mar the finished trim.

The "Ideal" is equipped with the best rubber tires. The



blades are of the best material for the purpose. A slight turn of one bolt firmly clamps the blade in place.

The four blades furnished with the "Ideal" have much extra real wearing surface. This because the blades have no slots or holes in them.

The blades can easily be sharpened without removing from the clamp.

The "Ideal" can be used as a sander.

The "Ideal" is extremely simple in construction as well as in its operation. It is impossible to get it out of repair by use.

No contractor and builder can afford to be without an "Ideal" floor scraper.

Try one and be convinced. For full information and prices address T. L. Phillips, Aurora, Ill., U. S. A.

New Bevel Protractor

The L. S. Starrett Company, Athol, Mass., U. S. A., have added a new line of bevel protractors to their already large list of accurate tool and gauges. Their bevel protractor, No. 490, which is equipped with hardened blade and reversible head, is illustrated herewith.

This tool is of the same general design as their No. 12 pro-



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SEE SWEET'S INDEX PAGES 650-651

The Pulling Power of a Good Store Front

MR. ARCHITECT: When you specify the Kawneer System Store Front you provide for your client a fully paid-up **Advertising** contract, available 365 days in the year in addition to a policy insuring against rotting of sills and a permanent injunction against painting.

The merchant pays high rent for a desirable location in order to sell his goods to the largest number of people. Why not help him to larger returns without increasing the amount of his investment?

Good merchandise cannot be properly displayed in poor show windows. In a **Kawneer System** Store Front goods can be displayed to the best advantage every day, winter and summer. **Goods well displayed**

are half sold and sales are what the merchant is looking for

Kawneer Store Fronts mean better Store Front Construction, larger sales and more of them without adding to fixed expense.



Sackett Plaster Board

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**Instead of
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**Time
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**DOES
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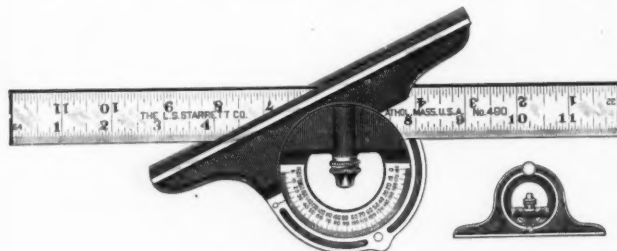
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that made
plaster
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**First used
in 1891
Perfected
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Sackett Plaster Board Company

**17 Battery Place
NEW YORK**

tractors will be sent with blades of No. 4 graduation, unless both sides of the blade. This greatly improves the usefulness of the tool, as the same angles may be transferred from either side of the frame without re-setting. Another improvement is that the turret is graduated to read both ways from 0 to 180

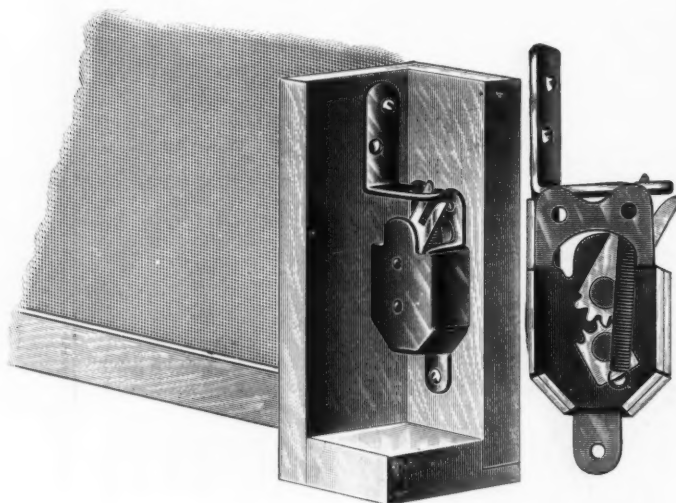


degrees. Mechanics will clearly appreciate this point, as direct readings may be had from the turret, indicating the supplement of the angle, as well as the angle required. The fact that there is but one zero line on the frame eliminates all possible chance of confusion as to whether acute or obtuse angles are obtained.

The head of this protractor is 7 inches long and is supplied with an accurate level attached to one side as shown by cut. The blades are hardened and graduated with heavy figures reading both ways. The heads are made with fine smooth finish to match the finish of their No. 33 combination squares. The heads will, however, also fit the blades of the No. 11 and No. 23 combination squares and combination sets. These protractors will be sent with blades of No. 4 graduation, unless otherwise ordered.

Diehl's Screen Door Catch

We are again calling your attention to Diehl's screen door catch No. 51. Cut No. 1 shows the catch in position on door. The catch is placed on the jam of the door, always right side up on either side of the door, whether right or left. Place the angle iron on door so that the loop will engage in the forks of the catch.



No. 1

No. 2

Cut No. 2 shows the inside construction of the catch. This is the only catch made that has a double leverage, so that the spring always pulls across the corner and still has a direct leverage on each arm. This spring will never lose its tension as it does not expand over one-eighth of an inch and is enclosed in a solid steel casing.

These goods are manufactured by Diehl Novelty Company, Sheboygan, Wis.

The Never Fail Stropper

In all probability many readers of AMERICAN CARPENTER AND BUILDER have experienced the troubles of the man in the picture. You have doubtless reasoned, as he seems to be doing, that if you couldn't cut one hair with your razor, how the deuce were you going to cut a face full. An agony of torture has usually resulted every time you have attempted to shave yourself. So, with muttered imprecations, you have given yourself over to the mercies of the suave barber.

The Never Fail Company, Toledo, Ohio, claim that they have completely changed this situation, and that no man need longer dread the operation of shaving himself. They have an automatic stropper that will put a hair splitting edge on the dulllest razor in four to six seconds. The stropper is made in two styles, one for the old-style razor and the other for any style safety. Both are models of simplicity and work with precision and ease. No fussy parts to get out of order. It is reported that \$15,000 has been spent by the Never Fail people in perfecting this stropper, and they appear to be so confident of its making good that they make an exceptional fifteen-day trial offer to all readers of this paper. It is so manifestly fair and above board that we believe our readers would make no mistake in accepting it. Complete details are to be found in their advertisement.



Thirty-one Miles of Pioneer Roofing

The Pioneer Roll Paper Company, manufacturers of ready roofings, roof paint and insulating papers—whose factories are located in Los Angeles—recently received an order from the Associated Supply Company, of San Francisco, for 400,000 square feet (31 miles) of 32-inch roofing—to be used in covering their large oil reservoirs in Kern county. The size of this order, and the source from which it came, is certainly a strong endorsement of the quality of Pioneer roofing.

We are advised that the Pioneer Roll Paper Company will be glad to send their 32-page illustrated booklet on roofs and roofings to anyone who will write for it, mentioning this publication.

Prize for Investigations of Concrete

The award of the Miracle Thesis prizes for the competition of 1908-1909 has just been made. Mr. O. U. Miracle, of the Miracle Pressed Stone Company, Minneapolis, Minn., a former Ames student, provides, annually, a sum of money to be awarded in three prizes for investigations helpful to the concrete industry.

Five Theses, representing the work of nine men, were presented in competition for these prizes. Mr. Go. P. Deickmann, chief chemist of the Northwestern States Portland Cement Company, at Mason City, Iowa, Mr. L. L. Bingham, a prominent cement pipe, block and sidewalk manufacturer at Estherville, Iowa, and professor I. A. Williams who has charge of the cement and clay work instruction at the Iowa State College at Ames, were the judges.

The first prize of \$50 was awarded to Messrs. R. R. Strother of Hubbard, Iowa, and Platt Wilson of Montezuma,

(Continued on page 394)

\$1

AND THE
COUPON
WILL BRING
THIS
THREE DOLLAR
NEVER FAIL
STROPPER

The Never Fail Co.,
1072 Nicholas Bldg., TOLEDO, OHIO.

I enclose \$1 for one No. ___ Never Fail Stropper on your 15 day offer. If it is satisfactory, I will send you \$2 within 15 days. If not, I am to return stropper and get my money back.

Name _____

Address _____

City _____ State _____

No. 2
For Old
Style
Razor

No. 1
For Any
Style
Safety

Handy Lamp—Gasoline Lighting System
A Shadowless 300 Candle Power Light

that can be turned UP OR DOWN instantly same as gas, or can be left burning day and night at a dim light of one candle power or less at almost no expense and can be turned up instantly to a Dazzling Bright 300 candle power light that will flood a 30-ft. room with light as bright as day at less than one-third cent an hour and save five times its cost in a year, over kerosene, gas or electricity. One gallon of gasoline will last 40 to 50 hours. They are simple and safe; any one can handle them; can be used anywhere, in home, store, church, or wherever good light is needed. Write at once for A. C. B. catalog and particulars.

To Light Pull This Lever Up

Brilliant Gas Lamp Company
Department 20, 42 State Street CHICAGO, U. S. A.

MONTROSS METAL SHINGLES

CARPENTERS and Builders who want more business and increased profits should lay MONTROSS METAL SHINGLES. They make pleased customers, who speak well of your work, and greatly helps you to get new business. They are no experiment; we have manufactured them over twenty years, and they are giving complete satisfaction on the buildings where they were first laid. MONTROSS METAL SHINGLES are easily and quickly laid, and are Fire, Storm and Lightning-proof. Ornamental and inexpensive. Embossed, then galvanized or painted. Lighter than slate, and outlast wood shingles and other roofings. They do away with roofing troubles of all kinds. Write today for catalog, giving prices, discounts, testimonials, many illustrations, and full information why it is better to lay a MONTROSS METAL SHINGLE roof than any other kind.
Address 102 Erie Street.

MONTROSS METAL SHINGLE CO. CAMDEN, NEW JERSEY

TRY THE NEVER FAIL 15 DAYS

Then, if you can't say with perfect truth, "Never have I enjoyed such soothing shaves," send it right back at our expense and we'll return your money.

With the **Never Fail** every user is at once an expert. You can instantly sharpen any razor—any style blade—and make it better than the day it passed the shop inspector. Better, keener, sharper than it can be made by the most expert hand operator, and in much less time. Only a few strokes on either side does the trick—five or six seconds. If you use safety blades, the **NEVER FAIL** WILL MAKE EVERY ONE OF THEM GOOD FOR FROM 50 TO 150 PERFECT SHAVES, so it will pay for itself in money as well as time saved.

We are so positive the **Never Fail** will make good, that we issue the exceptional offer contained in the center of this advertisement. We want you to enjoy a **Never Fail** like thousands of others. We want you to know, by experience, the pleasure of a smooth, soothing, comfortable shave—a shave only possible with a **Never Fail Stropper**.

Remit only a third of the price—and that simply as an evidence of good faith. Could we choose our inquirers we'd gladly send it free. Send just \$1.00. Try the **Never Fail** 15 days. Subject it to the severest tests. Then, if not completely satisfied—if not the best stropper you ever used—if it doesn't do just as we say, send for your money.

There never was a shaving problem—it has always been a sharpening problem. Any man can use a razor, provided his blades are properly sharpened.

We could tell you much about the way the **Never Fail** is made, but you don't care to hear it. You only want to be certain of a **GOOD** stropper—one that will positively end your shaving troubles. We have it in the **Never Fail**. One dollar and the coupon will prove it, and your dollar is simply on deposit while you judge.

Don't go on shaving the old way—the torturing way. Don't waste time and money and undergo the risks of the barber shop. Shave every day in your own home at the same time you complete the rest of your morning toilet. Carry the clean, well-groomed face to business that every gentleman should. You'll feel better—look better and be time and money ahead. Just clip the coupon, pin a dollar bill to it and mail at our risk.

NEVER FAIL COMPANY

1072 Nicholas Building TOLEDO, OHIO

DUMB WAITERS
AND
HAND ELEVATORS

OF THE MOST IMPROVED
AUTOMATIC CONSTRUCTION

INVALID LIFTS
TRUNK, CARRIAGE,
SIDEWALK AND
FREIGHT ELEVATORS

SEDGWICK MACHINE WORKS
POUGHKEEPSIE, N. Y.
AND
128 LIBERTY ST. NEW YORK

CATALOGS AND
ESTIMATES FURNISHED
SEE SWEET'S INDEX

PUMPS, DOOR-HANGERS, STORE LADDERS

The Pump That Pumps

MYERS

Glass Valve

Myers Stayon Flexible Door Hangers

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—“Stayon.” Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, Ohio.

SPRAY PUMPS

Double-acting, Lift, Tank and Spray

PUMPS

Store Ladders Etc.

Hay Tools

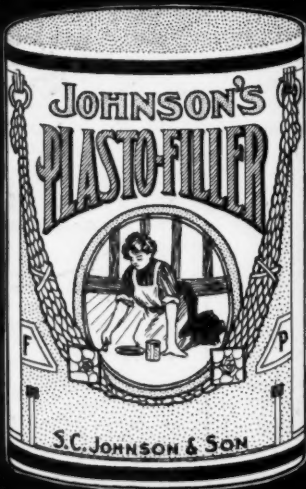
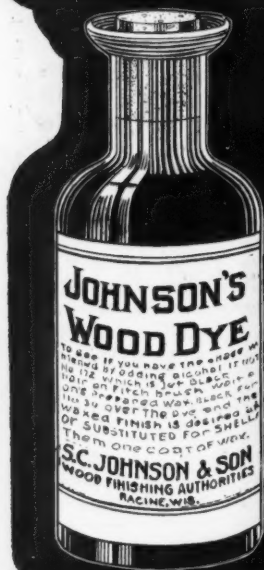
of all kinds

Write for circulars and prices.

Noiseless Cushion Tire

LADDERS

These



Free

Prove the exceptional quality of these Johnson Preparations by actual test --AT OUR EXPENSE.

More than likely, you've heard a great deal about Johnson Materials for finishing and refinishing wood. Now, we ask you to get better acquainted with these preparations—by trying the samples which we will send you free. Mail back the coupon—right now—and we will send you post-paid samples of all three of these Johnson preparations:

Johnson's Wood Dye

For the artistic coloring of all wood. It is a deep-seated stain and a proper finish must be applied over it. Johnson's Wood Dye is made in fourteen shades as follows:

- | | |
|----------------------|-----------------------------|
| No. 126 Light Oak | No. 128 Light Mahogany |
| No. 123 Dark Oak | No. 129 Dark Mahogany |
| No. 125 Mission Oak | No. 130 Weathered Oak |
| No. 140 Manila Oak | No. 131 Brown Weather'd Oak |
| No. 110 Bog Oak | No. 132 Green Weather'd Oak |
| No. 121 Moss Green | No. 172 Flemish Oak |
| No. 122 Forest Green | No. 178 Brown Flemish Oak |

Half Gallon, . . . \$1.50

Johnson's Under-Lac

Is better than shellac or varnish, and may be used wherever either of these preparations may be used. It dries in a half-hour. Gallons, . . . \$2.50

Johnson's Plasto-Filler

This preparation comes in powdered form. Mix with water and it is ready for use. Better and cheaper than any paste crack fillers on the market.

One and Two-pound packages, 20 cents per pound

S. C. JOHNSON & SONS

The Wood-Finishing Authorities
RACINE, WISCONSIN

Working Samples Of Johnson's Finishes Sent To You Free, Postpaid

Fill out the Coupon and mail to us today and we will send you working samples of Johnson's Plasto-Filler, Johnson's Under-Lac and Johnson's Wood-Dye in any shade you select. (See list of shades on opposite page.)

With the samples we will send you our illustrated guide book containing complete color card and full directions for finishing and refinishing wood. You need this book—and you need the samples. We'll send both immediately upon receipt of the Coupon.

Partial List of Jobbers of Johnson's Wood Finishes

Kohler-McLister & Co., Denver, Col.	Carlson-Lusk Hdw. Co., Boise, Idaho.	Barber & Ross, Washington, D. C.
Carpenter-Morton Co., Boston, Mass.	Gamble & Ludwig, Minneapolis, Minn.	Noyes Bros. & Cutler, St. Paul, Minn.
The Knight & Wall Co., Tampa, Fla.	Pittsburg Plate Glass Co., Atlanta, Ga.	Bridges-Smith & Co., Louisville, Ky.
Chas. Moser Co., Cincinnati, Ohio.	Pittsburg Plate Glass Co., Pittsburg, Pa.	J. J. Hockenjos & Co., Newark, N. J.
Walker & Gibson, Albany, N.Y.	Becker-Moore Paint Co., St. Louis, Mo.	Louis Gallaher Co., Savannah, Ga.
H. M. Hooker Co., 128 W. Washington Street, Chicago, Ill.	Schroeder Paint & Glass Co., Detroit, Mich.	
Cleveland Window Glass & Door Co., Cleveland, Ohio.	The Bond & Bours Co., Jacksonville, Fla.	
Bennett Glass & Paint Co., Salt Lake City, Utah.	Barnard, Porter & Viall, Rochester, N. Y.	
Western Paint, Oil & Glass Co., Lincoln, Neb.	Johnson-Woodbridge Co., Indianapolis, Ind.	
Ilisley & Held, 2264 3rd Ave., New York, N.Y.		
Pittsburg Plate Glass Co., New York, N.Y.	Marshall-Wells Hdw. Co., Duluth, Minn.	
Barnes & Nuss, Grand Forks, N. D.	Marshall-Wells Hdw. Co., Winnipeg, Can.	
Fred Hummert, San Antonio, Texas.	Irvin, Jewell & Vinson Co., Dayton, Ohio.	
C. W. Keenan, Brooklyn, N. Y.	The Chas. M. Hay Paint Co., Portland, Me.	
Campbell Glass & Paint Company, Kansas City, Missouri.		
David Bernhardt Paint Company, New Orleans, Louisiana.		
Westcott, Slade & Balcom, Providence, Rhode Island.		
H. M. Hodges & Brothers, New Haven, Connecticut.		
United Sash & Door Company, Wichita, Kansas.		
Heystek & Canfield Co., Grand Rapids, Mich.		
Fred'k Neeseman & Co., Baltimore, Md.		
	W. P. Fuller & Co., San Francisco,	
	Los Angeles, Sacramento,	
	Stockton, Oakland, San	
	Diego, Cal.; Portland,	
	Ore.; Spokane,	
	Tacoma,	
	Seattle,	
	Wash.	

Why We Make This Offer

We have learned this: The quickest way to convince the Wood Finisher of the superior qualities of the Johnson preparations is to furnish him with samples so he can see for himself that we do not exaggerate the excellence of our products. And so we ask you to send for these samples and make your own tests. You'll never go back to putty or plaster of paris for filling cracks after you have tried Plasto-Filler. After a test of its quality, you will use Under-Lac in place of varnish or shellac.

And just as surely, no ordinary stains will satisfy you once you see for yourself how perfectly Johnson's Wood Dye brings out the natural beauty of the wood.

A. C. B-12.

S. C. JOHNSON & SONS,
Racine, Wis.

Please send samples of Johnson's
Plasto-Filler, Under-Lac and Wood-Dye
shade No. _____ Also booklet.

Name _____

Address _____

City and State _____

My dealer's name is _____

Iowa, for an investigation of the proper proportions for mortar and concrete.

The second prize of \$30 was awarded to Messrs. O. L. Huffman of Wyoming, Iowa, and E. S. Fowler of Radcliffe, Iowa, for an investigation of the effect of clay and reground cement on the permeability of concrete and cement mortars.

The third prize of \$20 was awarded to Mr. Royce Heath of Ames, Iowa, for an investigation of patent compounds for waterproofing concrete.

All the investigations were considered by the judges to have brought out points of importance to the concrete industry, and they will be published shortly in a bulletin of the Engineering Experiment Station at Ames, copies of which can be obtained free by writing to A. Marston, Ames, Iowa.

Cement Sewer Pipe Used

The *Denver Republican* for September 3rd, states that in letting the contract for all the work on the West Denver storm sewer to Gaffy and Keefe the board of public works took an important step. The contract price is \$66,900. This is not so big but the contractors will use concrete pipe. This is considered the important point at city hall—the use of concrete in sewer work giving what the charter calls for in public work, namely, competition. Vitrified brick pipe has been used heretofore, and while it has served the purpose well, the price has been considered high on account of lack of competition. With the cement companies bidding on this class of work the taxpayers will get the benefit. The battle will end in the survival of the fittest, and in the meantime there will be a reduction in prices all around.

In the contract which is about to be awarded for the West Denver sewer a 24-inch concrete pipe laid in the ditch will cost \$1.03 a foot. Under the old order vitrified pipe of this size cost \$1.37½ on the bank, to which would have to be

added the cost of trench digging. A 21-inch concrete pipe costs 87½ cents in the ditch, whereas a vitrified brick pipe cost \$1.10 on the bank.

It is but fair to state that with smaller pipe the vitrified pipe makers have the best of it, as the cement companies cannot make concrete pipe of small dimensions much cheaper than those of larger size; nevertheless the large-sized pipe is used to a much greater extent than the small sizes in public work.

The mayor and board of public works have had this question of concrete versus vitrified clay under discussion all summer and spring. The vitrified brick people have made a hard fight against the introduction of concrete, and they started agitations against its use in certain parts of the city. For a time they succeeded. Some small contracts let earlier in the year in which the contractor was expected to use concrete were finished with the old material by "arrangement" with the contractor and manufacturer, but in the West Denver job, concrete will be used.

Experiments in other cities with concrete pipe have been successful. It is cheaper and is said to be as durable as the vitrified clay pipe. And for a number of reasons its use means something of a revolution in the contracting world.

In this connection it is of interest to note that the Miracle Pressed Stone Company, of Minneapolis, are furnishing cement pipe molds and equipment to the value of \$1500.00, which are to be used in making the cement sewer pipe for this contract.

No. 8 "Union" Combination Saw

In the accompany cut is shown the improved No. 8 "Union" combination saw machine manufactured by the Seneca Falls Manufacturing Company, 218 Water street, Seneca Falls,



The New Carborundum Sharpening Stone for Carpenters

It's a combination stone and IT IS ROUND

Its shape and size allow for the rotary motion required in sharpening chisels, planer iron, etc.

With the ordinary rectangular stone a square inch or two is used and the rest scarcely ever touched—

With the round stone all of the cutting surface—twelve inches—enough for the largest tools—is brought into play and there is no unused surface.

Besides, it has the fast, keen edge producing Carborundum qualities.

PRICE ONE DOLLAR

QUARTERED OAK BOX HOLDER FIFTY CENTS.

ASK YOUR DEALER, OR SEND DIRECT TO

THE CARBORUNDUM COMPANY

NIAGARA FALLS, N. Y.

By
Far the
Strongest
Gripping Brace
You Have Ever Had

The greatest improvement ever made in brace construction is the ball-bearing chuck.

It can be tightened with the bare hand to a firmer grip than you can get with a vise on any other brace.

It can be released so easily that the weakest wrist can do it.

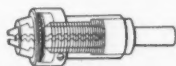
The only brace made with this patented chuck is the

P. S. & W. SAMSON BRACE

Tenpenny nails held by this brace have been bored through solid oak. Five sixteenths-inch rods with one end in a vise, have been twisted to the breaking point.

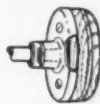
Beside the wonderful ball-bearing chuck, the Samson has a steel clad head with dust-proof ball-bearings—not a cast iron head nor a flat plate, but a steel cap completely surrounding the head to the height of $\frac{1}{8}$ of an inch.

The Ball-Bearing Chuck



The Alligator Jaw is still another asset of the Samson Brace. It parallels itself to fit the shape of any drill shank. No matter how hard the shank is jammed in, the spring will not be broken.

The Steel Clad Head



THE MARK OF THE MAKER is on every P. S. & W. Guaranteed Tool. It represents 90 years' experience and ability, backed by the highest quality. Look for that trade mark on every tool you buy.

Sold by all leading dealers.

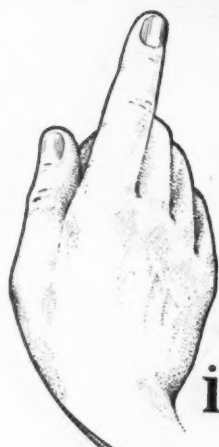
WRITE US FOR OUR FREE BOOK-LET. Our 160 page Mechanics' Handy List contains many pages of valuable information, and a complete catalog of over 200 tools for Carpenters, Machinists, Electricians and Tinsmiths. Sent free at your request.

The Peck, Stow & Wilcox Co.

MANUF'RS of the Largest Line of Mechanics' Hand Tools Offered by Any Maker

Established 1819—Five Large Factories
Address Correspondence to 22 Murray Street, N. Y. City





There
is the Reason
Why

SIMONDS SAWS ARE THE BEST

THE steel, and the teeth formed from the steel are vital things about a Hand Saw.

All the cutting of a saw is done at the points of the teeth, therefore a saw should be made of material that will hold the tooth points. or, in other words, hold its cutting edge. Simonds Saws are Made of Simonds Steel and as a result are superior to other saws. This high grade saw steel will hold a point through hard and continuous service. Buy Simonds Saws if you want the best. You will get the best steel, the best hanging saw, the best value for the money.

When you need saws of any kind let us know and we will send you a free copy of an interesting booklet, "Simonds Carpenter Guide," also the name of Hardware Dealers near you handling our saws.



Look for this trade mark
etched every saw.

SIMONDS MFG. CO.
Fitchburg, Mass.

Chicago San Francisco Seattle
New York Portland Montreal
New Orleans London, Eng.

N. Y. It is designed to supply the demand for a well-made light power machine at a low cost, and since various kinds of small engines and motors have become common the call for these machines has steadily increased. The engine may be belted direct to the saw, making a compact outfit at a small cost. They are suitable for ripping up to 3½ inches, also for cross-cutting, mitering, and with attachments, boring, edge-molding, grooving, dadoing, etc.



No. 8 "Union" Combination Saw

It is made with a strong and rigid iron frame, steel arbor and babbitt-lined boxes, which are adjustable. The combination wood and iron table top is 28 inches wide by 36 inches long; the middle portion of iron is 10 by 36 inches in area and has in the center two hardwood strips fitted one on each side of the saw. The table is hinged at the back and can be adjusted up and down by the hand screw in front for rabbetting, grooving, dadoing, etc. The pulley on outer end of saw arbor shaft is 3 inches in diameter, 2¼-inch face. The "Union" boring attachment and "Union" molding attachment can be used on this machine and either can be attached almost as easily and quickly as changing saws.

For a more complete description address the Seneca Falls Manufacturing Company for their Catalogue "A," which also describes their complete line of wood-working machinery.

Gasoline Lighting

Every builder should investigate the merits of the "Hand Lamp" gasoline lighting system of the Brilliant Gas Lamp Company, Chicago, Ill. It is the absolutely satisfactory and thoroughly modern illumination for suburban or country homes. Their new A C B catalogue is now being sent to those interested. Address Department 20, 42 State street.

Notice to Carpenters and Builders

The prize ad. of the Diehl Novelty Company that has appeared in previous numbers of this paper will appear once more in this issue. All coupons should be filled out and sent in before January 14th, as the contest ends on January 1st. Carpenters and contractors, it would be worth your while to fill out these coupons and send them in, as the prizes that



Fine Files for Fine Tooth Saws

Any old file won't sharpen every old saw properly. This is especially true of fine tooth saws. Until lately it was almost impossible to get a file that was small enough to go to the bottom of the tooth and at the same time cut the side to the proper angle. Now almost every dealer carries a stock of

E. C. S. **KEEN KUTTER** **Special Slim Taper Files**

—the slimmest taper files made. They go right down to the bottom of the teeth on a fine tooth saw, cutting true and quickly. For any other fine work they are just as suitable.

Like other Keen Kutter tools they are designed and built especially for the work. The teeth are accurately cut by improved machinery on blanks of the best tool steel. Tempering is done by natural gas, which gives them unequalled hardness and toughness. The cutting surfaces are uniform, every tooth being of the same depth. This gives 100% cutting efficiency compared with the 65% of ordinary files.

Compared with the general run of files these slim taper files are very long-lived. Instances are numerous where one file had sharpened 15 or 20 saws, and in one case 35 saws had been sharpened with the same file.

To introduce our special slim taper file to carpenters who appreciate good tools, we will send two free samples on receipt of the attached coupon properly filled out.

If not at your dealer's, write us.

"The Recollection of Quality Remains Long After the Price is Forgotten."

Trade-mark Registered. —E. C. SIMMONS.

SIMMONS HARDWARE COMPANY, Inc.
St. Louis and New York
U. S. A.



(Coupon)

SIMMONS
HDW. CO.,
(Div. A. C.)
St. Louis, Mo.

Dear Sirs:

Please send me
FREE, Charges Prepaid, two
E. C. Simmons Special Slim
Taper Files, as per your offer,
with the understanding that I am
under no obligation to buy.

NAME _____

ADDRESS _____

are being offered by the Diehl Novelty Company cannot be purchased at your local jewelers at this value.

To those that have been using their goods we would advise them not to let this opportunity go by, as it is a cinch that somebody is going to get something good for Christmas.



Equipment for the Modern Home Laundry

Nowadays housekeeping really is a business quite as exact-

ing and difficult for the housewives as "money-grubbing" is for the men; and if there is one function more than another which electricity can be made to serve, it is that of making housekeeping simple and easy and economical.

The family washing by old-time methods is a great drudgery. Still, many housewives prefer to go through the ordeal once each week for the satisfaction they find in having it properly done. Another class of women would like to do this,



TO OWNERS AND ARCHITECTS



Owners, architects and plumbers should investigate the many advantages of the Peerless Kitchen Boiler, the simplest, safest, cleanest, most economical system of hot water supply yet perfected.

The Peerless contains "the best of all the rest," and several exclusive features that make it unequalled for all hot water needs in flats, homes, bungalows, hotels, clubs, restaurants, laundries, etc. Thousands of modern, up-to-date structures all over the country are now equipped with the Peerless, which is giving perfect satisfaction to owners and tenants wherever it has been installed. The Peerless Heater is guaranteed three years. See Wolf's Catalogue H—pages 150 and 151.

PEERLESS KITCHEN BOILER

contains no coils nor "dead arms." This gives it big advantage—first, because it takes considerable fire to heat the coils—and second, sediment from the water in the coils blocks the flow and makes the water impure—third, in the Peerless the hot water is separated from the cold water, as it goes down cold from the water-main and comes up hot, saving from 40 per cent to 60 per cent in gas.

REQUIRES NO OUTSIDE HEAT

The Peerless is a self-contained heater, 98 per cent of the heat it generates goes directly into the water. Always clean, pure and sanitary because the water never stands, but is heated fresh as it comes without interruption to the flow. The Peerless is the only water heater with a circulating system—noiseless, odorless, no dirt, soot or waste.

THE PEERLESS WAY AVOIDS DELAY

The Peerless Kitchen Boiler provides an unfailing, unlimited volume of fresh water, heated to 185 degrees, ready day or night.

The installation of the Peerless is the same as with the old-style boiler. Connection with the nearest small gas pipe is sufficient—no extra pipes to be put in, nor is connection with an extra water motor necessary. The Peerless makes you absolutely independent of any other hot-water fixtures in the building. They may all go wrong, but the Peerless never fails. Burns natural and artificial gas or gasoline.

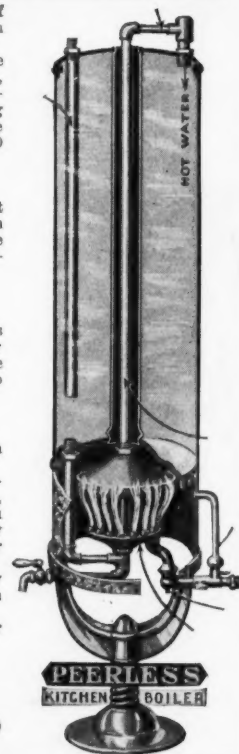
The flame does not come in contact with the bottom of the boiler, but a hollow disk is so arranged that the water circulates through the disk and is heated in circulating.

The Peerless will be demonstrated in a working exhibit in New York, December 14th-21st inclusive, at the Madison Square Garden, Booth No. 144.

Send for illustrated book free, fully describing the Peerless Kitchen Boiler.

Peerless Heater Co., 39 State Street, Chicago

Department A





A New Start in Life

IF YOU are a carpenter, contractor, builder, architect, draftsman or apprentice, this picture should mean a great deal to you. There was a time when the only knowledge you could get of your trade or profession was through the "hard knocks" of experience. In your father's day the young man who failed to get an education could not make up for it in later life—he could not spare the time from work to attend a school or college, so he had to get through life with only the training he could get through working on the job.

There isn't time enough in a man's life to learn all that he should know about building construction by actual work and so the average workman knows only that work which he is experienced in handling. All this is changed. The different trades in all branches have their libraries which teach in simple, clear language all that used to be hard to learn in the building construction field of work.

RADFORD'S CYCLOPEDIA of CONSTRUCTION Carpentry, Building, Architecture

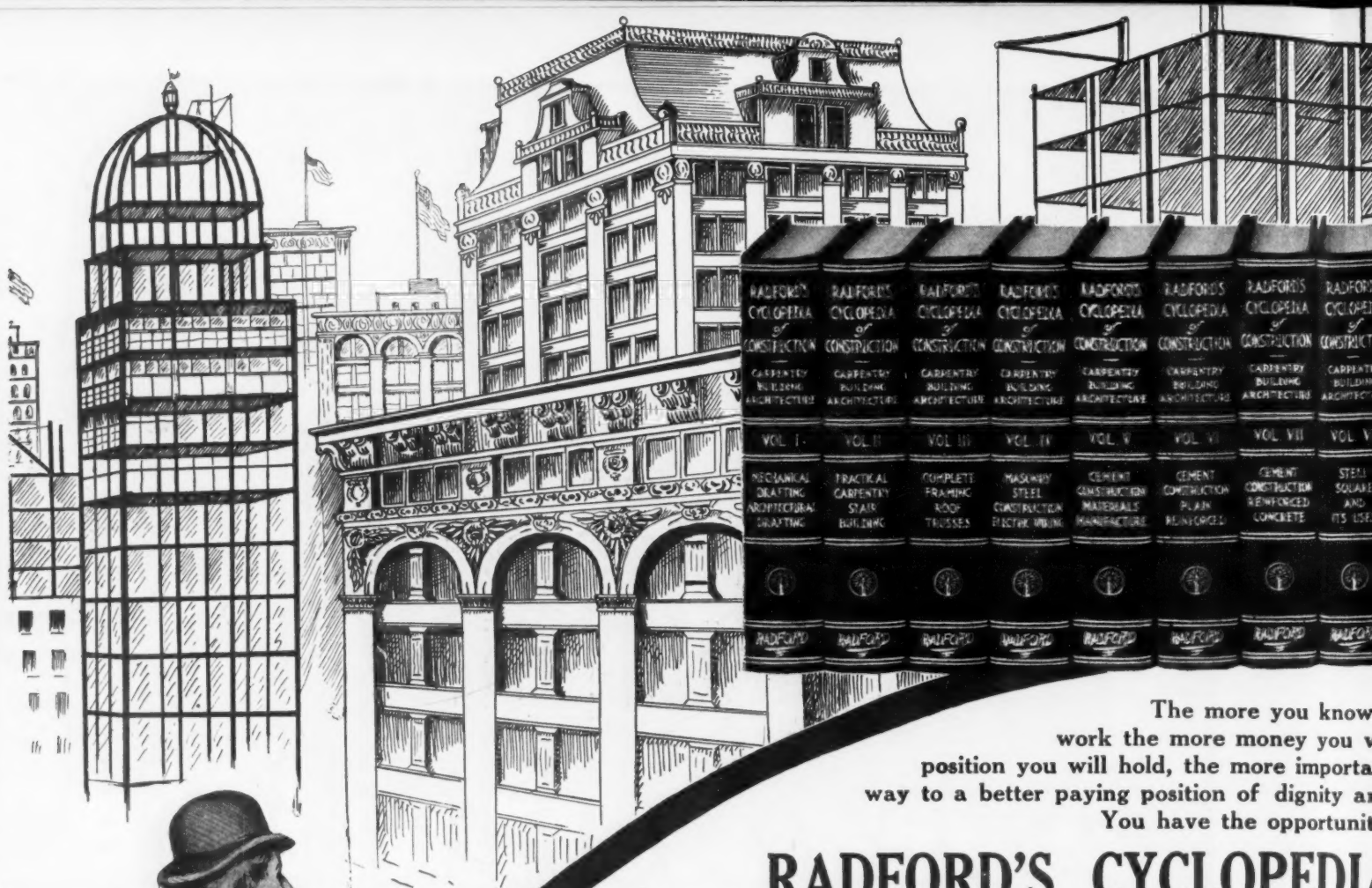
fills a long-felt want. We offer you now in this announcement a good chance to purchase it on unusually liberal terms—terms under which we take all the risk—this big, massive twelve-volume, five-thousand page CYCLOPEDIA, embracing all the features of construction work from the framing of a simple barn or cottage clear through to the erection of mighty sky-scrapers, bridges and mammoth public works of all kinds. Every problem is solved in a way that any one can understand, no higher mathematics and no school room theory anywhere. Practical instruction from start to finish, written by practical experts for practical men.

If there is anything about your trade that you don't know; anything on which you want to refresh your memory; if there is anything that you believe will help you to a bigger job, paying better money and giving you more agreeable kind of work, you will find this information in the CYCLOPEDIA.

That's why we say this is your chance for a new start in life—a chance for you to get ahead in your trade, backed by certain knowledge of how to do things.

Let this new start in life be your Christmas gift to yourself.

For Your Christmas Gift



The more you know
work the more money you v
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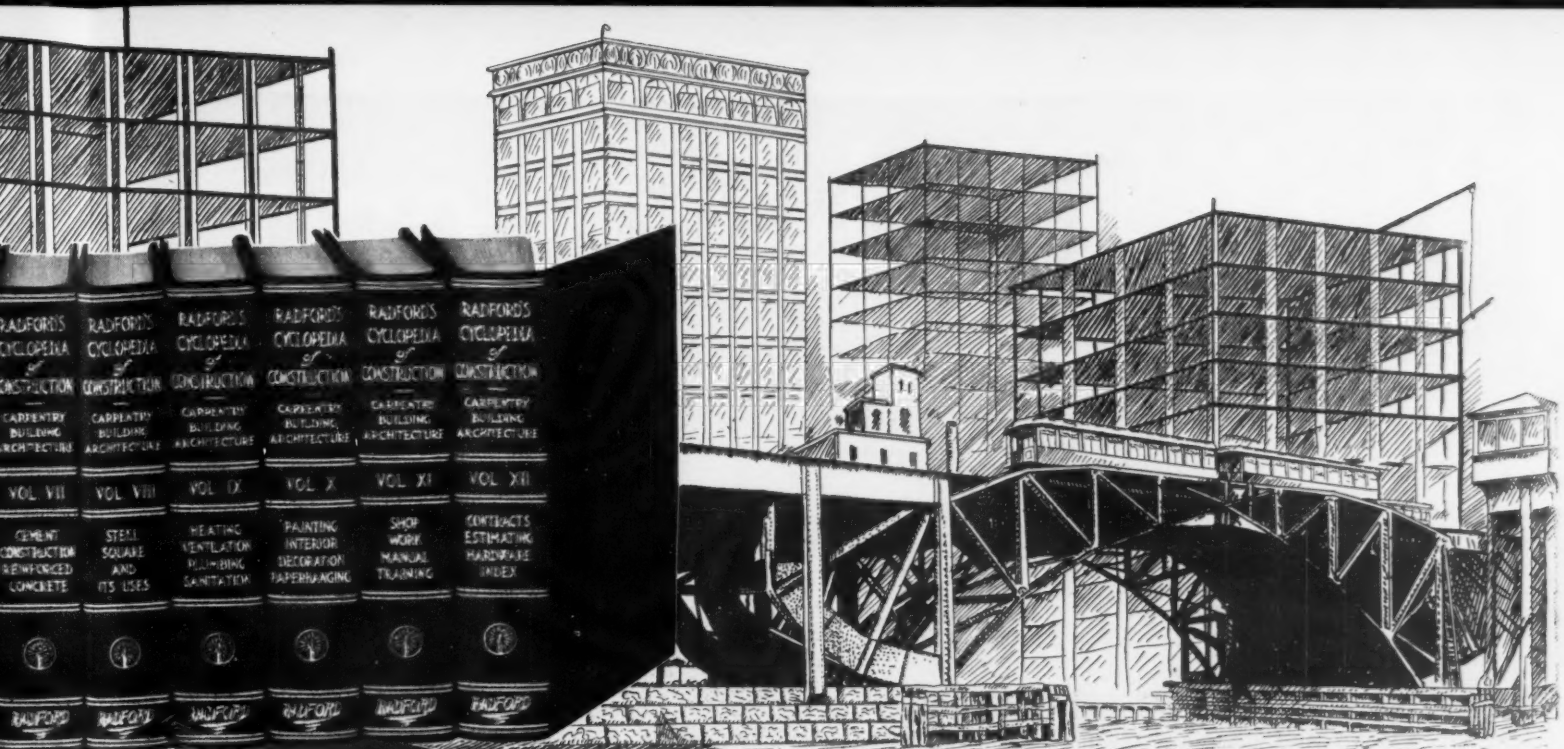
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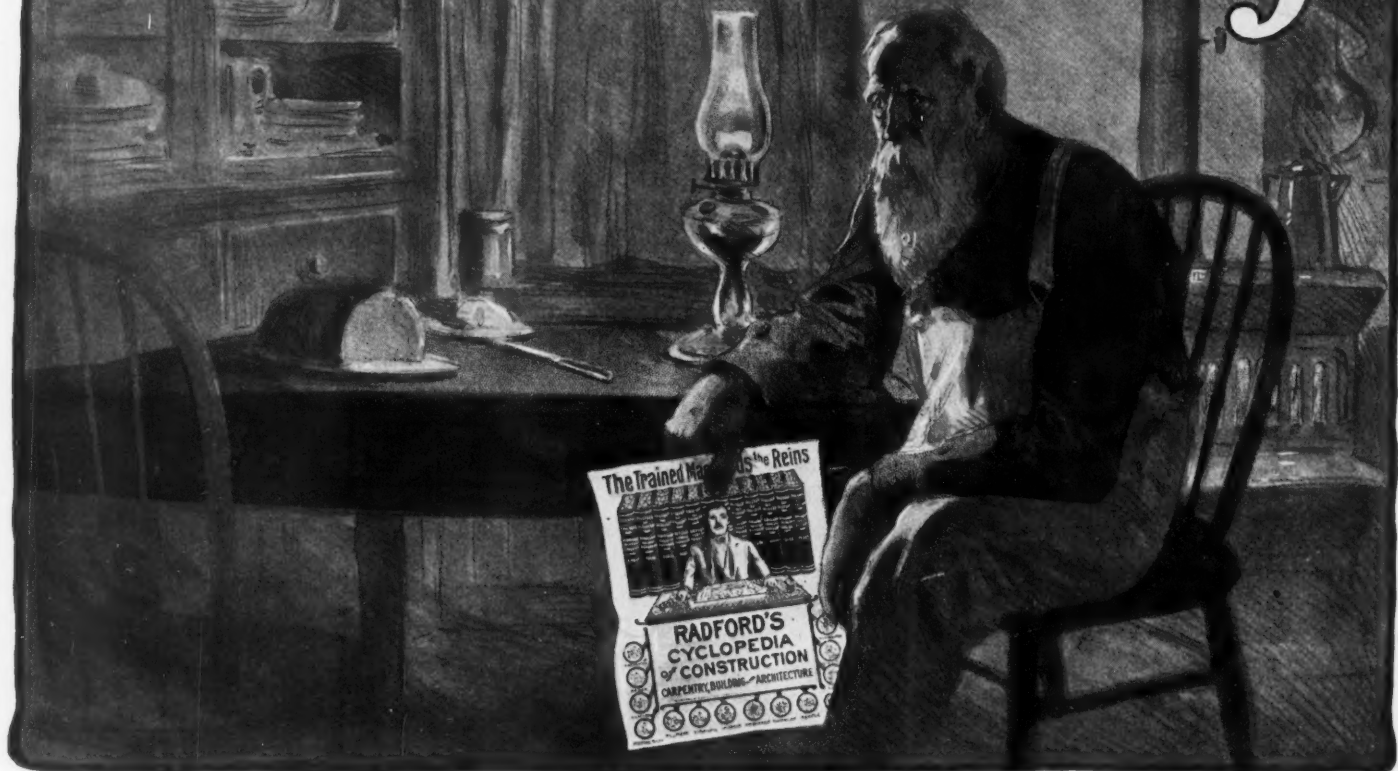
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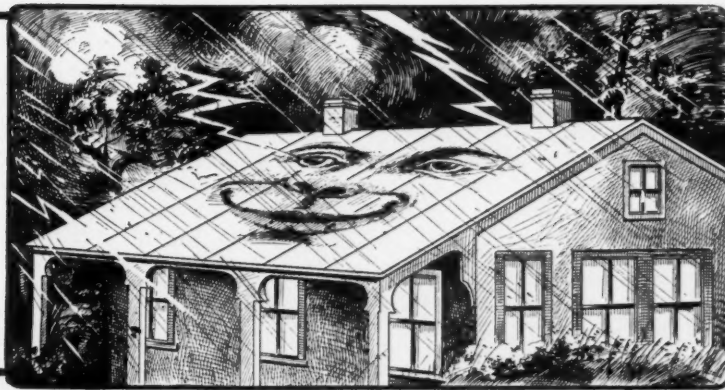
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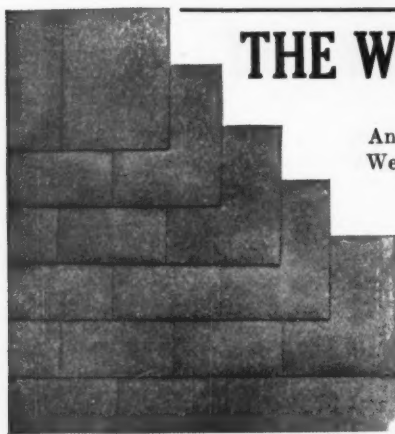
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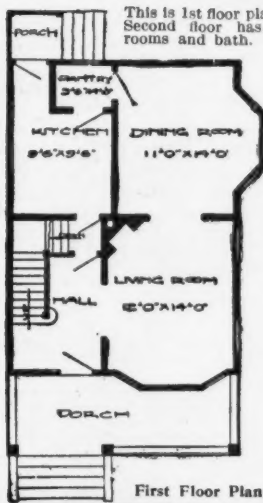
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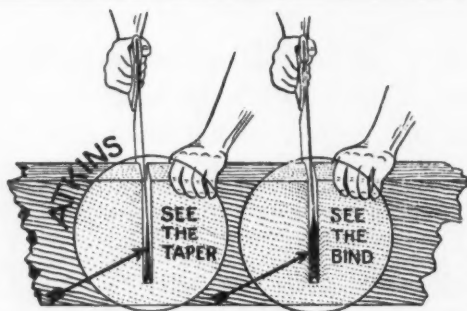
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The Peerless is available for country houses, where there is no gas. A gasoline burner is attached in such cases, and the effects and results are precisely the same as where gas is used.

The combustion of the gasoline vapor in the Peerless gasoline burner is perfect and complete. It makes no odor whatever.

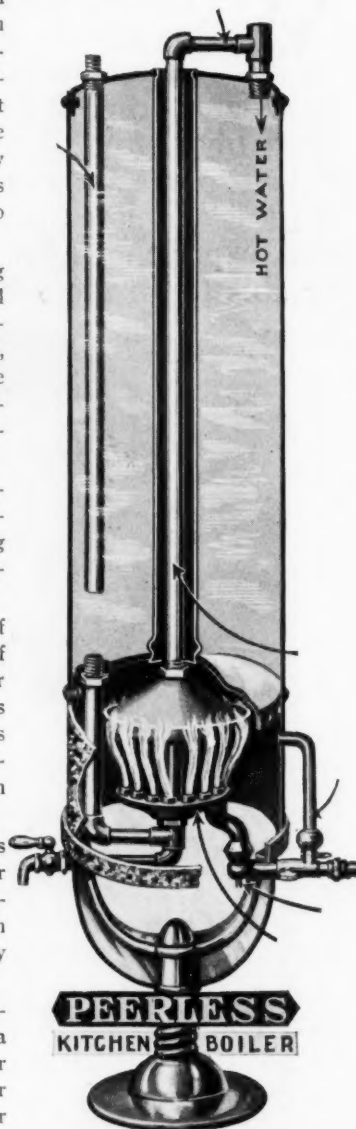
There is a large trade in the Peerless kitchen boiler that can be handled to good advantage in nearly every locality with proper display as pertains to this gasoline outfit; there being many suburban homes and outlying villages where they do not use gas.

With the Peerless gasoline outfit a country home can be supplied with hot water throughout the house equal to that of the finest city palace, at a very reasonable expense for installation and extremely low cost in operation.

The Peerless Heater Company, Chicago, Ill., will be glad to furnish complete information concerning this matter to readers of the AMERICAN CARPENTER AND BUILDER on request.

Protective Casting for Iron and Steel

The accompanying illustration is a photographic demonstration of results produced with the acid proof coating of



Do You Want A Southern Home?

Health, Wealth and Happiness in the Finest Climate Imaginable Await Settlers in this Productive Country

100,000 Acres
located at Yellow
Pine, Washington
County, Alabama,
along W. & C. R. R.,
only 60 miles from
the Gulf Coast.

Homesekers!

Investors!

Scientific farming, reinforced by Northern brains and energy is accomplishing wonders in this three and four-crop-a-year country. By taking advantage of the wonderful discoveries of Luther Burbank and accepting the assistance of the Department of Agriculture, a few acres will make any man rich in a few years.

Why not spend your declining days in Alabama, where the climate is ideal and life is worth living?

One of These Productive 10-acre Farms in Alabama, the Wonderland!
Can Yield an Income of \$3,000 to \$5,000 a Year to Settlers. Investors are assured of big returns.

If business keeps you North in Summer, spend your Winters in Alabama, in comfort and at a profit.

These Cheap Railroad Lands Offer Unbounded Opportunities

If Horace Greeley were living today, he would say

"Young Man Go South"

You are now offered an exceedingly inviting opportunity to procure at a very low price, and on easy terms, a home for yourself in the most productive country in the world, where ten acres will yield an income of \$3,000 to \$5,000 a year — where not one crop, but two, three and even four crops may be grown each year on the same ground, where climate, natural rainfall and soil unite in creating bountiful harvests.

A few acres of this Alabama Land is a great protection for the little ones.

Lands Adapted to General Farming, Corn, Cotton, Potatoes, Etc., Fruit Growing, Vineyards, Market Gardening, Nuts, or Poultry, Live Stock, Bees, Dairying, Etc.

\$250 Down
\$400 Down

For 10 Acres of Land and a 4-Room House
For 10 Acres of Land and a 7-Room House

\$250 on Long Time
\$400 on Long Time

A LIMITED NUMBER OF NEAR-TOWNSITE TRACTS

If you are working for a small salary and have saved \$500, here's your chance to buy a home of your own, with 10 acres of rich land that will yield an income of \$3,000 to \$5,000 a year.

Doesn't it sound good to you—to you who have struggled along for years as a dependent, paying rent and saving little?

It's true—and we can prove it. The Washington and Choctaw reservation has just been thrown open, after being relinquished by a lumber company that had cleared out all of the best lumber. They left the soil however, and you will look a good ways to find soil that is more productive.

A railroad can't make money without a population along its line. The W. & C. Railroad runs through a stretch of several miles with not a town. We are going to establish two townships—and we are going to sell a limited number of 10-acre tracts bordering on those townships, pretty much on-room houses built on the properties—the present price to be \$800—you can pay all or half—move onto the property now and start making money, or wait a short time till you can pay the balance out of your earnings. You may have two years time in which to pay the bal-

ance. If you wish it. (A four-room house and 10 acres, \$250, down—\$250 in easy payments.)

Just think what your 10 acres will be worth in a few years!

Experience is not necessary. A city man can do it. It simply requires a moderate amount of brains and the nerve to get started.

It's just a few intelligent wide-awake people who will wisely "snap-up" these tracts. Will you be one of them?

Besides these near-townsite tracts, we have thousands of acres of \$25 and \$50 lands which are now being offered at \$17.50 per acre, in any size tracts from 10 acres up—terms as low as \$1 per month; long time.

Money-making investors will waste no time in getting possession of these lands. You do not have to move upon the land you buy of us nor cultivate it.

In a generation Illinois farm lands have increased from \$1.25 to \$250 per acre—and that is one-crop-a-year land. Down here we raise two, three, and even four crops a year on the same land.

The investor won't get rich as quickly as the settler—but he will get rich just the same.

A Limited Amount of \$25 and \$50 Lands will be sold for

\$17.50 Per Acre

On Easy Terms

Any size Tract from 10 acres up

Terms as low as \$1.00 per month

\$5.00 down and \$5.00 per month for 10 acres

No Swamps

No Stones

No Irrigation Necessary

Sweet, Pure Water

Read What These Men Say

CHARLES H. STOCKWELL, Evansville, Ind., after visiting our Alabama lands:

"Your literature in regard to the land and its products has not been exaggerated. I was simply delighted with the climate. My purchase of 280 acres of your land is simply convincing evidence that I am pleased with the country and its future prospects."

D. L. GRIFFIN, Farmer and Stock Raiser, Bridgeton, Mo., says:

"I am just in from a five days' trip to your land at Yellow Pine, and I want to say that the selection of 160 acres you made for me is O. K. in every way and suits me exactly. I am more than pleased with the land and will move down and begin working my place the first of January."

GEORGE RAYBURN, Greenville, Ill.:

"You may refer to me as a satisfied customer. I was down to your lands last week and 'saw the goods.'"

FREDERICK D. TUCKER, formerly Principal, School of Agriculture, University of Minnesota:

"I have examined a great deal of land throughout the South and never have I been so completely satisfied with any tract of land as with the large area you are now selling. If Horace Greeley were living today he would say: 'Young man, go South.'"

This Is How Alabama Farmers Make Money

A farmer near these lands this season planted Irish potatoes in February, harvesting a big crop in May; then he planted corn on the same ground, harvesting in early autumn, following with provender and a crop of vegetables for the winter market.

Pecan nuts and peanuts afford a considerable source of income. There is no limit to the possibilities of fruits, nuts, vegetables, etc., in this section.

The largest peach orchard in the South is near these lands and it yields a great crop this season. Cotton yields big profit and requires little attention. Vineyards are money-makers.

The Summers are cool and pleasant; the Winters mild and balmy.

This District Has National Fame as a Health Resort

It's the Only Part of the Country Absolutely Free from Local Diseases

If you have a good position in the North during the summer months, why not maintain a winter home in the South, avoiding the cold winters—and incidentally raising a crop or two at a profit while away? This proposition should appeal particularly to farmers and men with trades who do not have much work in the winter.

BUILDING

In this mild climate, with cheap lumber, a good modern dwelling only costs from \$300 to \$1,200, according to size. You can afford to own an extra home here for your winter months. Instead of being an added expense to you, it will, with a little work, maintain itself and yield a profit.

Write Today for Free Booklet

Free transportation to prospective settlers and investors over the Washington & Choctaw R. R. Nearly all roads give special homeseekers' rates. To settlers we offer free transportation of families and effects over the W. & C. R. R., when they move upon our land.

Agents Wanted everywhere. Liberal inducements

Washington & Choctaw Land Co.

6198 Times Building, ST. LOUIS, MO.

Markets

Sixty miles from the coast;
21 hours from St. Louis;
29 hours from Chicago.
One railroad through the tract—one on the west and one on the east.
Half the land within 1-2 miles of a railroad.

6198

Washington & Choctaw Land Co., St. Louis, Missouri:

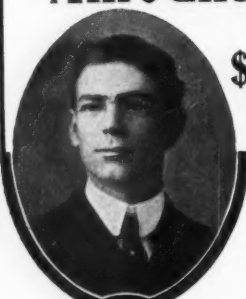
Send me complete information about your \$17.50 Alabama Lands. I am a HOMESEAKER INVESTOR.

Name.....

Address.....

THIS COUPON OPENS THE DOOR TO PROSPERITY

Four Salary Raises Amounting to Over \$1,000 a Month



To prove to you that we can raise your salary we give the evidence below. Photographs of these men are shown in the order that their experiences are given:

Mr. F. M. Lege, Jr., of Eagle Pass, Texas, has steadily advanced from a position in the office of an Electric Light and Power Company to his present position as general manager of a large company, and has increased his salary over \$300 a month.



Mr. H. G. Davis, 236 Chestnut Street, Kingston, Pa., advanced through I. C. S. Training from employment as a miner to district superintendent in the coal-mining department of the D. L. & W. R. R., with his salary increased \$200 a month.



Mr. A. K. Harford, 854 53d Street, Oakland, Cal., was engaged as an engine-room storekeeper. I. C. S. Training has advanced him to superintendent of an electric-light plant with a salary increase of \$160 a month.



Mr. Ralph M. Snyder, Ft. Wayne, Ind., a clerk in an express office was enabled, through his I. C. S. Training, to enter the architectural field. He now has an office of his own with commissions this year amounting to about \$12,000.

Here we have in all four increases in salary amounting to much more than a thousand dollars a month. On an average of 300 advancements of this kind are reported to us voluntarily by students every month. On this basis it is estimated that I. C. S. trained men earn increases in salary amounting to over \$20,000,000 in one year.

You can get your share of these increases if you have the will power to start. Mark and mail the coupon below and our experts will tell you how we can adapt I. C. S. Training to your individual needs and pocketbook, in your own home, in your spare time and without having to give up your present work. Use the coupon now.

International Correspondence Schools

Box 910, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position before which I have marked X.

Architect
Arch'l Draftsman
Contractor & Build.
Building Inspector
Structural Eng.
Struct'l Draftsman
Plum. & Heat. Con.
Supt. of Plumbing
Form. Steam Fitter
Plumbing Inspect'r
Heat. & Vent. Eng.

Estimating Clerk
Bridge Engineer
Civil Engineer
Surveyor
Mechanical Eng.
Mechan'l Drafts'n
Stationary Eng.
Electrical Engineer
Electrician
Elec.-Light. Supt.
Elec.-Rail'y Supt.

Foreman Machinist
Sh.-Met. Pat. Dfts.
Mining Engineer
Textile Expert
Bookkeeper
Stenographer
Ad. Writer
Window Trimmer
Illustrator
Civ. Service Exams.
Chemist

Name _____

Street and No. _____

City _____ State _____

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

the Glidden Varnish Company, Cleveland, O., which material will undoubtedly interest the iron and steel industries. Acid proof coating is especially intended as a preservative finish or coating for trainsheds, roundhouses, steel tanks and towers, skylights, blowers, ventilators, stacks, water and gas meters, reinforcing materials, bridges, iron and steel buildings, structural and plate constructions of every conceivable kind.

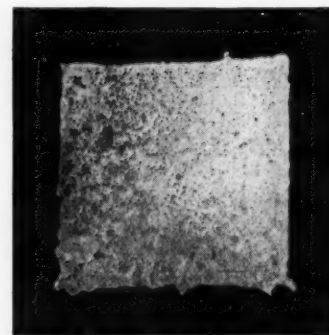
A priming coat of acid proof coating upon iron and steel, followed with pigmented coatings, such as graphite, zinc, red lead and similar products, followed with a finishing coat of acid proof coating gives most excellent results along the lines of preventing corrosion and decay of iron and steel construction; this forms a film or cushion upon the iron or steel surface, which protects any metallic pigment preservative coatings, which you may use from direct contact with the iron and steel, and in this way acts as an insulating medium, which prevents corrosion, due to electrolysis (electrical action) taking place when a metallic, magnetic pigment coating such as zinc, red lead, etc., is placed in direct contact with iron and steel surfaces, thus exciting electrical action, the ultimate result of which is corrosion underneath the pigment surface.

With a film of acid proof coating applied as a primer or first coat, followed with a coat of pigmented goods, as above referred to, and a final or third coat of acid proof coating, you produce a result of unusual merit along the lines of preventing corrosion of iron and steel, due to electrolysis, acid or alkaline gases, the elements or other causes. For your information, it is stated that this company is now in position to furnish acid proof coating in its transparent form, and in combination with same can be furnished the graphite acid proof coating to be used over the priming coat of transparent acid proof coating.

A word regarding graphite acid proof coating; this product is a combination of the purest and highest quality of graphite incorporated with the transparent acid proof coating. The durability of same speaks for itself, as you are aware of the fact that graphite is conceded to be one of the most durable and inert pigments for the preservation of iron and steel surfaces. (Graphite coatings are today used for this work, in volume greater than all other pigment coatings combined.)

While the specification, as above, calls for three coat work, which will produce unquestionable results from a standpoint of durability, in the event the construction engineers feel that they cannot use more than two coats, we suggest a very thorough shop coat or priming coat of acid proof coating, followed by a very thorough coat of our graphite acid proof coating, after the structure is erected, and previous to the coat of graphite acid proof coating all abrasions or exposed surfaces should be touched up with an insulation of the transparent acid proof coating.

The accompanying illustration is a photographic reproduction of what occurred when a piece of sheet iron coated with Glidden's acid proof coating (leaving the center of one side unprotected or exposed) was submitted to a bath of 30 per cent nitric acid. At the expiration of an hour and forty minutes, the entire unprotected portion of the metal



was completely consumed by the acid, leaving a strong, firm film of acid proof coating which had not deteriorated in the least; in fact, same was as elastic and durable as before being submitted to the nitric acid test.

This is an extremely interesting and severe test and demon-

Nothing Down!

Lyon & Healy's Great Offer!

MAJESTIC —PIANO

FREE TRIAL



The great popular-priced instrument of the day. Choice of fancy woods, including genuine mahogany.

Majestic Piano, Style 1—\$155

Majestic Piano, Style 2—\$165

Majestic Piano, Style 3—\$175

These new style instruments are exclusively a music-trade production.

They in no way resemble the pianos sold by furniture houses, for their tone-quality is in accordance with the ideal of experts who make a life study of music.

Nothing Down!

30 DAYS' FREE TRIAL

You may purchase a Majestic Piano from us with the understanding that it may be returned within 30 days and the trial will not have cost you one dollar. The Majestic Piano contains many excellent features which we shall be glad to explain to you. Come prepared to go thoroughly into this subject of piano buying. The market is flooded with imitation goods and the information which you will acquire in the course of a visit to our salesrooms will prove invaluable.

Cash or Time You may take nearly three years to pay for a Majestic or you may pay us cash—as you choose—the price is the same.

Remember, in buying a Majestic, that the price is possible only because you are dealing with the world's largest music house. Every Majestic is guaranteed by us. We also sell a new Upright Piano for \$138—this piano is listed by its makers at \$300. But we urge buyers whenever possible to get something better—to select a Majestic.

The Piano That Can Be Exchanged The Majestic can be exchanged at full price paid toward a Steinway, Lyon & Healy or Washburn. Hence it is the favorite, inexpensive piano among all far-seeing and conservative buyers.

Exchange Dept. Choice of a floor full of slightly used and second-hand pianos, including about 30 nearly new Steinway Uprights. All at lowest bargain prices.

Wabash Ave.
and Adams St.
CHICAGO

Lyon & Healy

Write for
Catalog

Largest and Finest Stock of New Pianos, including Steinway, Pianola-Pianos, Lyon & Healy, Washburn, under one roof in America [45]

BIG ORDERS—BUSY MEN

Our very biggest orders come from the very busiest men. They haven't the time to waste with cheap ready roofings of questionable quality. They roof with

GAL-VA-NITE

because they know then that the owner will be satisfied. They use this famous "mica-plated--triple asphalt-coated" ready roofing because they know that it is easiest to put on and the best to depend on.

Don't risk your reputation by using a poor roofing. GAL-VA-NITE will stand up under the most adverse climatic conditions.

We want every good live contractor, carpenter and builder in the country to know GAL-VAN-ITE.

The manufacturers

Union Roofing & Mfg. Co.

1109 E. 7th Street, St. Paul, Minnesota



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

BIGGER PROFITS

FOR THE CONTRACTOR Who Uses The **WATROUS NO. 17 SCREEN HANGER**

These same pieces, arranged to suit, will hang either a full or a half screen from either the top or side. Storm sash should be hung from the top, but this is the only way to hang a screen.


Only four screws to set instead of twelve, a saving in labor of two-thirds. A gauge mark locates the piece instantly, and makes mistakes impossible. A carpenter who has bought other hangers, could afford to throw them away, buy the Watrous No. 17, and make more money on the job. Mounted working model sent free postpaid to dealers or carpenters. Write to-day.

Finish either japanned or galvanized, with galvanized screws.

E. L. WATROUS MFG. CO.
DES MOINES : : IOWA




Granite Roofing
TRADE MARK



This great pier was roofed nine years ago with **Granite Roofing**. At the present time it shows no signs of wear, and is expected to give excellent satisfaction, without attention or repairs, *for at least ten years longer*. Unlike the ordinary ready roofing, which is adapted only for temporary buildings and sheds, **Granite Roofing** may be economically used on all kinds of structures. Its unusual weight, 140 lbs. to the roll, gives to this roofing *unparalleled durability*. It can be laid by any one who can handle a hammer. **Granite Roofing** has a surface of sea-grit, thoroughly imbedded into its composition, which makes it fireproof and takes the place of the paint or coating.

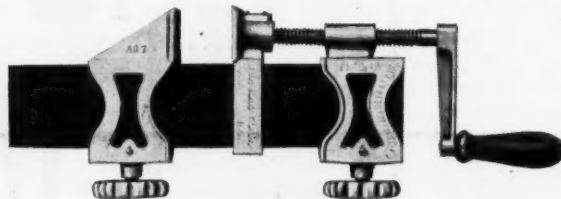
Send for free Sample and Booklet, and learn about this best of all roofings.

EASTERN GRANITE ROOFING CO.
1 Hudson St., NEW YORK CHICAGO ST. LOUIS

states the wonderful durability of this acid proof coating along the lines of protecting structural iron and steel plate construction of every conceivable kind against corrosion and decay, due to electrolysis, the elements, acid and alkali fumes or other conditions.

The Todd Clamp

The Todd clamp, shown in the accompanying illustration, manufactured by the Brown Specialty Machinery Company, 73-75 West Jackson boulevard, Chicago, is made of malleable iron, 3/16-inch thick. It is designed to fit on a wood bar 1 1/4



by 3 inches, thereby eliminating the extra weight and spring of an iron bar, and permitting the use of the clamp for work of any size. The movable jaw is equipped with a hardened steel bushing against which the feed screw is centered, thereby directing the entire wear against this bushing instead of against the jaw itself. The end of the feed screw is also hardened. By replacing this bushing when worn, the life of the clamp can be materially increased. The feed screw is centered by a split washer which also holds the movable jaw rigid. Set screws are used for holding the bushing and washer in position. The rear stationary jaw has a bearing surface, 2 inches square, and both stationary jaws are provided with milled plates which firmly grip the bar when tightened by the hand wheel screws. The nut on the forward stationary jaw is 1 3/4 inches long, while the feed screw operating the movable jaw is 7 1/2 inches long and is cut seven threads to the inch.

New Orleans Office Moves

The Star Expansion Bolt Company, makers of the famous Star expansion bolts, have moved their New Orleans, La., sales office to No. 504 Audubon building, where strangers and friends alike will be welcomed by D. S. Miller.

Rising Automobile Prices

The Maxwell-Briscoe Motor Co., Tarrytown, N. Y., desire to indorse heartily the following editorial which appeared recently in *The Co-Operator*:

The praises of the automobile industry have been sounded so loudly and the lightning-like rapidity of its progress has become the subject of so much exuberant description in all quarters, that the casual reader of this may be apt to regard the following sober contemplation as a piece of pessimism—which, of course, it isn't.

The demand for automobiles is greater than ever. The plants of the various manufacturers are busier than at any previous time, and the output will be far in excess of that of former seasons—the Maxwell-Briscoe Motor Company alone preparing for the production of no fewer than fifteen thousand cars.

In spite of this unrivaled activity we are willing to go on record as the authors of the prediction that the man who justifies his hesitation about the purchase of a car with the mental reservation: "I'll wait until they are still cheaper," will be doomed to disappointment.

This should not be interpreted as an undue urging of the prospective buyer to send in his order and check sooner than he intended, because as far as the representative makers are concerned such urging will hardly appear necessary in view of the certainty that even a vastly increased production will fall short of meeting the entire demand.



Asbestos "Century" Shingle Roof—Residence of Nathaniel Davidyan, West Moorestown, N. J.; E. E. Holman, Architect; J. S. Rogers Company, Stanwick, N. J., Contractors.

ASBESTOS "CENTURY" SHINGLES

"The Roof that Outlives the Building"

A house gets its market value quite as much from its appearance as from what it represents in dollars and cents. An unattractive, cheap roof knocks enough off the selling value to offset the "saving" a dozen times over.

Asbestos "Century" Shingles dress up the house, make the most of its good points, and fill the eye of the prospective purchaser. And they protect the house from fire and weather as no other roofing can.

Dense, elastic sheets of asbestos fibro-cement, formed and compacted by tremendous hydraulic pressure. Cannot decay; improve with age and exposure. Absolutely fire-proof. Three colors, numerous shapes and several sizes. Ask your Roofer for new quotations. Write for Booklet "Roofing 1909."

The KEASBEY & MATTISON COMPANY, Factors, Ambler, Pennsylvania

Rough Weather Roofs

SHOULD BE CONSTRUCTED OF



**32 POUNDS COATING
ROOFING TIN**

"The Terne which turns the elements"

MF Roofing Tin has been steadily growing in favor and demand for over fifty years. Light, strong, durable reasonable in cost — an MF roof will neither leak, crack, burn, nor blow off. The most satisfactory roofing material obtainable is a good terne plate — MF.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

New York Chicago St. Louis Philadelphia Pittsburgh Detroit Denver Portland San Francisco New Orleans Cincinnati
Export Representatives: UNITED STATES STEEL PRODUCTS EXPORT COMPANY, New York City

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



There's Money for You in Steel Ceiling Work

And you can easily handle it. Our construction is planned to simplify erection and reduce number of pieces to handle, thus saving time, labor and expense. Any good mechanic with the aid of our working drawings can easily do the work and secure a neat, snug-fitting, workmanlike job.

We help you by preparing free suggestion drawings and estimates. Send sketch and dimensions of room or rooms to be covered and we will submit suggestions and quote exact prices on the material delivered at your depot.

Berger's "CLASSIK"

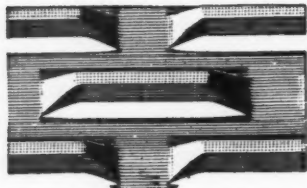
is the most complete line of artistic Steel Ceilings in existence AND OUR CATALOG PROVES IT.

Write for it TODAY. Ask for No. D-55.

THE BERGER MFG. CO., Canton, O.

New York Philadelphia Boston Chicago
Atlanta Minneapolis San Francisco St. Louis

SYKES METAL LATH



The lath that is positively different to anything else made; different because it combines more good features.

Cup lath is the only Expanded Metal Lath

that can be plastered on either side—cannot be applied wrong because both sides

are alike.

We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.

NO PICKLED LATH

Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust. Requires no furring out from studs because it is self furring.

It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country. In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.

NILES, OHIO

No doubt, right here the reader might interpose: "Well, if that is the case, why does the manufacturer not increase his output?"

The answer is: "He can't."

The demands of the automobile industry for raw materials have reached a point where the resources of allied industries have become inadequate. For some of the raw materials the demand has grown at a rate that has almost completely exhausted the visible supply, with the inevitable result that the prices of these commodities have soared to unaccustomed heights because of the strain imposed by the demand on a depleted market.

Take the item of rubber. We can still recall the time when crude Up-River Para gum could be bought in the open market at thirty-five cents a pound. Only about a year ago the price was well below the dollar mark. Today crude rubber sells at two dollars and ten cents with no prospect of a decline and with an almost appalling scarcity of the material. Yet wheels must be shod with rubber tires and the automobile manufacturer is compelled to purchase his tire equipment at a much higher cost than was ever exacted of him before; the heydays of the rubber pool arrangement pales into insignificance when the present-day price of rubber is considered.

The increase in the demand for special steels, owing to the unusual requirements of the automobile industry, is without parallel, again with the consequence that the 1909 prices of steels show a rise over the figures of 1908 of from 15 to 25 percent. Here, too, the needs of the automobile industry have brought about a scarcity of raw material, so that it has become a matter of absolute fact that the automobile manufacturer is governed in his plans, not by the amount of business he can command, but by the amount of raw material he is able to obtain. When it is considered that the pig iron production in this country rose from 15,936,018 tons in 1908 to 25,283,346 tons for 1909, an idea may be had of the unprecedented increase in demand for raw materials.

That the steel market will remain stringent for some time to come may be conjectured from the renewal of the buying of rolling stock by the railroads and from the enormous sales of steel rails, which lately have amounted to 100,000 tons per week.

It is unfortunate for the automobile industry that the increasing signs of general prosperity have not only brought increasing demands for raw materials from other quarters but are also responsible for new industrial combinations in various lines, which, by consolidating their interests, are able to maintain a high price for their productions of raw materials.

Owing to the demands of the automobile builder the visible supply of trimming materials and stuffing hair is practically exhausted. Before the advent of the automobile industry the meat production of the country produced enough hair to satisfy all needs. But animals are killed, not for their hair and hides, but for their meat, with hair and hides as a mere by-product, which now commands a larger profit for its sellers than ever.

Not a bit less in importance than the condition of the raw material market, is the present situation of the labor problem.

Nor are these conditions confined to the automobile manufacturer proper; they are also found in all establishments making the accessories forming part of the complete motor car. The scarcity of good labor and the difficulty of securing raw material also contribute to the reasons which make for increased prices in these lines.

Of course, even this chaotic upheaval of resources will ultimately right itself, though relief is not in sight yet.

But it would be unwise for the public to expect the prices of cars to pursue a downward course at the same time when the price of nearly every part going into their manufacture keeps constantly rising. Indeed it should be the cause for



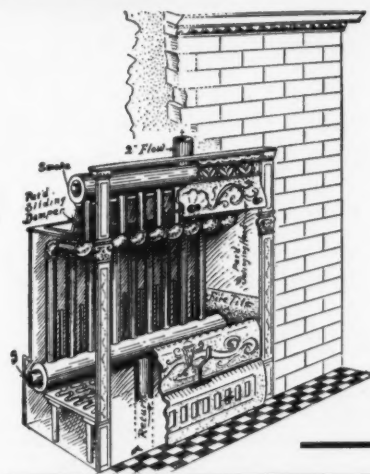
LIGHT FOR HOMES, STORES, FACTORIES AND STREETS

The best light under the sun is produced by the STANDARD AND SIMPLICITY LIGHTING SYSTEMS. Better than electricity or city gas, cheaper than kerosene or candles, with none of their objections. No smoke—no soot—no odor—no work filling lamps or trimming wicks. A light that does not defoul the air. Suitable for the cottage or for the mansion, for the city or country home. Anyone can operate them and be entirely independent of gas and electric companies. Produces a Hydro-Carbon Light—white, brilliant and penetrating. Does not change or affect colors at night nor cause eye strain. Endorsed by insurance underwriters, recommended by users.

BIG MONEY FOR LIVE AGENTS.

We want a live, wideawake hustler to represent us in every community. Exclusive territory given. A well organized "Sales System" aids the agent in his work. Write today for large illustrated catalogue and further particulars.

THE STANDARD-GILLETT LIGHT COMPANY, 6 West Michigan Street, CHICAGO, ILL.



Mantels of Wood, Brick or Tile

furnished direct from factory at attractive prices, freight paid

TILE and GRATES of every description

Our No. 51 Grate is guaranteed to heat from 8,000 to 10,000 cubic feet of space in zero weather.

CATALOGUE FREE

Contractors and Architects, send us the names of your clients requiring Mantels, Grates and Tile for same as well as Tile Floors and Wainscoting of every description. We will make it interesting for you. Send plans for estimates.

HEITLAND GRATE & MANTEL CO.

No. 127 South Fifth St., QUINCY, ILL.

Storm Sash and Screen Hanger No. 1



The time is drawing near at hand when carpenters and builders begin putting up storm sash and it might be well to say that the **best and most convenient** goods are always the cheapest in the end.

We make the only Ball and Socket Hangers on the market. One trial will convince you that they are the best.

Our No. 1 Fastener is made of the best steel wire. It holds the Sash firmly against the blind stop and prevents rattling.

MANUFACTURED BY THE

DIEHL NOVELTY CO.

SHEBOYGAN, WIS.

Storm Sash and Screen Hanger No. 2



This Looks Good to Others, How Does It Look to You?

\$110 to Be Given away in Prizes.

We want you to know us, and to know our goods, and their superior qualities and conveniences over all others. We take the lead in a practical line of builders' hardware. To satisfy yourself of this fact send 10 cents in stamps for sample of any article that we manufacture. Seeing is believing. Send for catalogue and satisfy yourself.

In order to introduce our goods to the contractors, we are offering the following prizes to contractors that use the largest amount of our goods between April 1st, 1909, and January 1st, 1910. All coupons should be filled out and sent in before January 15th, 1910.

- 1st Prize — Gentleman's Gold Watch, 16 size, 17 jewel, hunting case, Howard movement, value \$35.00.
 2nd Prize — Gentleman's Gold Watch, 16 size, 17 jewel, hunting case, Hamilton movement, value \$25.00.
 3rd Prize — Gentleman's Gold Watch, 16 size, 15 jewel, open face, Elgin movement, value \$15.00.
 4th Prize — Gentleman's Solid Gold Watch Chain, value \$12.00.
 5th Prize — Gentleman's Solid Gold Fob, value \$10.00.
 6th Prize — Gentleman's Solid Gold Locket, diamond set, value \$8.00.
 7th Prize — Gentleman's Solid Gold Locket, value \$5.00.

DIEHL NOVELTY CO.

Diehl Novelty Co., Sheboygan, Wis.

Name of Contractor Address
 Name of Dealer from whom goods were purchased Address

Fill in with amount of goods used:

..... Doz. No. 1 Hangers and Fasteners.
 " " 1 Hangers only.
 " " 1 Fasteners only.
 " " 1 Screen Hooks.
 " " 2 Hangers and Fasteners.
 " " 2 Hangers only.

..... Doz. No. 2 Screen Hooks.
 " " 17 Screen Door Hinge.
 " " 18 Screen Door Hinge, extra part.
 " " 21 Basement Window Hinge.
 " " 22 Basement Window Hinge.
 " " 9 1/2 Basement Window Hinge.

..... Doz. No. 19 Basement Window Catch.
 " " 45 Inside Turn Button.
 " " 55 Corner Brace.
 " " 60 Coupling.
 " " 28 Base Knob.
 " " 50 Screen Door Catch.

You can show any of these prizes to your local jeweler and if he does not verify our statement of value you may leave them with your local express company or banker and we will forward for the amount.

All carpenters and contractors wishing to enter the contest please fill out this coupon and mail it to us at the end of each month so that we may be able to award prizes to the right parties at the end of the contest.

Trinidad Lake Asphalt

is the greatest weather-resister known. It makes roofing last. We use it to make Genasco — and we own the Lake.

If you want a roof insured against leaks, damages, and repairs get

Genasco Ready Roofing

Mineral and smooth surface. Look for the trade-mark. Insist on the roofing with the thirty-two-million-dollar guarantee. Write for samples and the Good Roof Guide Book.

THE BARBER ASPHALT PAVING COMPANY



Largest producers of asphalt, and largest manufacturers of ready roofing in the world.

PHILADELPHIA!

New York San Francisco Chicago

BUY A BOVEE FURNACE



Direct from the Factory
AND SAVE \$50.00 TO \$100.00
ON YOUR HEATING PLANT
They Actually Save from One-third to One-half of the Fuel

We have one of the best equipped furnace factories in the west and make more than 30 different furnaces of seven leading styles and can furnish our customers with practically any size or style of furnace they may desire, either Upright or Horizontal, sufficient to heat a large church or school house, down to a cottage heating plant complete with all pipe, registers and fittings for \$55.00.

Our furnaces are the only furnaces having a perfect ventilating system for every part of the house.

We ship our furnaces cut to fit. Any handy man can install them without the aid of a tinner.

Catalogue and full specifications free.

Bovee Grinder & Furnace Works
50, 8th Street Waterloo, Ia.



A Booklet telling how to get water Fresh from the well for suburban homes. How to avoid storage of water. The most economically operated independent water system, etc.

Sent Free on Request

UNITED PUMP & POWER CO.

495 Old Colony Bldg.

CHICAGO

small wonder if the selling figures of automobiles were to accommodate themselves to the changing conditions under which the cars themselves must be made; in other words, we believe it very likely that not very long hence automobiles, instead of costing less, will cost more.

In fact as it now looks automobiles must go up in price, and they will, very soon.

Concrete Work in Winter

It is always risky work for property owners or builders to lay concrete during cold weather, but in extreme cases this class of work can be done if proper precautions are taken. In the cold and damp winter months concrete sets more slowly than during the warm periods, and for this reason it is argued that the centering under it must be left in position for a proportionately long time. Below a temperature of 50 degrees Fahrenheit concrete sets slowly, and below 40 degrees is very inactive. At 32 degrees concrete freezes before setting. Remove any concrete known to have been frozen. A slight frost extending only one-fourth of an inch into concrete is not detrimental to strength. Some builders claim that concrete can be frozen, thawed out, and will then reset. This may be so in many cases, but it is always best to remove any concrete in which the freezing has extended throughout the mass.

Concrete work can be carried on when the temperature is as low as 20 degrees (never lower), if the precaution is taken to encase the building with canvas and place heating grates or salamanders under the floor being concreted. Keep the building at a uniform temperature of about 60 degrees. Do not allow intense heat to come in contact with the concrete, as it will dry out the concrete before it has set. Cover the concrete after being laid with some good insulating material, such as sawdust, straw, cement bags, manure, etc. Be sure to cover the concrete work before stopping work at night, even though it is warm during the day time. Salt dissolved in the water used in mixing concrete helps to prevent freezing by lowering the freezing point. A 5 per cent solution (by weight) of common salt is ordinarily used and is not detrimental to strength when so used. Calcium chloride has an advantage over salt in that it reduces the freezing to a lower point. Dissolve in the water needed to properly mix the concrete 2 pounds of calcium chloride for each bag of cement used.

Heating the cement, sand, stone and water used in the concrete is helpful, but the materials must never be heated to a temperature of over 100 degrees, as the strength of the concrete will be weakened. Be sure that the concrete is thoroughly set (not frozen) before any centering is taken down. Leaving all the upright supports in place, remove the sides of the columns and beam boxes and thoroughly examine the concrete. Then remove the slab centering, and lastly the main supports. Leave the centering in place a few days longer rather than take chances. Do not take down the centering too soon.

LOFTIS SYSTEM DIAMONDS WATCHES ON CREDIT CHRISTMAS PRESENTS

You Can Easily Own a Diamond or Watch or present one as a gift to some loved one. Send for our beautiful descriptive catalogue containing 1,500 illustrations of all that is correct and attractive in Diamonds, Watches and Jewelry. Then in the privacy of your home or office, select whatever you desire. We send on approval the goods you wish to see. If you like them pay one-fifth the price on delivery and the balance in 8 equal monthly payments. Your credit is good and we give you the advantage of lowest possible prices. We ask no security—No endorsements—No interest. We make \$5 or \$10 do the work that \$50 does in a cash store and give you a written guarantee of value and quality. Do your Christmas shopping now conveniently and leisurely. Don't wait until the Christmas rush is on. Now is the time to make choice selections. If considering a Diamond or Watch as a gift, you will find the Loftis System a great and timely convenience on anniversaries, birthdays, weddings, holidays, etc. Diamonds as an investment are better than a savings bank. They are increasing in value from 15 to 20 per cent each year. They are better than real estate because you can realize their full value at any time. Our Christmas catalogue is free. Write for it today. Do it now.

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BROS. & CO.**

**THE OLD RELIABLE ORIGINAL DIAMOND
AND WATCH CREDIT HOUSE. EST'D 1858**
Dept. P802, 92 to 96 State St., Chicago, Ill.
Branch Stores—Pittsburg, Pa. and St. Louis, Mo.

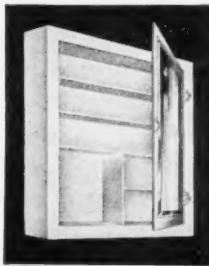


CHRISTMAS SPECIAL
Ladies' and Gentlemen's
Solid Gold Diamond Ring
Terms: \$5 a month

HESS MEDICINE SANITARY CABINET LOCKER

Something New for Your Home

Dust, Germ and Vermin Proof.
Made of Solid Steel Throughout,
and Finished Inside and Out in
Finest Everlasting Baked White
Enamel—Snow White—with Ad-
justable Enameled Steel Shelves,
Nickel Plated Hinges and Handle.



Better Than Wood and Costs No More

No home is complete without a Hess Sanitary Bath-
room Locker. It is suitable for the finest bathroom.
It is dust, germ and vermin proof and easily cleaned
with warm water.

Style "A" Locker is made to recess into the wall
and projects 1 1/2 inches from the face of wall. It has a
beveled plate mirror 16x20 inches and measures
19 1/2 x 23 1/2 inches inside. Below the mirror is an open
shelf 19 1/2 x 35 1/2 inches. Style "C" is the same size and
finish; made not to recess into the wall but to be
suspended on the wall.

Price of Style "A" - - - \$8.00

Price of Style "C" - - - 9.00

Without Mirror deduct \$1.50. Without
Open Shelf deduct \$1.00.

We will prepay freight charges anywhere east
of Missouri and North of Ohio Rivers, on orders
for two or more.

The same cabinets with a different arrange-
ment inside, are used in office buildings, clubs
and institutions for Toilet Lockers. Send for
Illustrated Circular Showing Several Sizes.

We are makers of the Hess Steel Furnaces,
Important Booklet, "Modern Furnace Heating,"
Sent Free.



See That
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HESS

920 Tacoma Building
Chicago

Hotel Cumberland New York

S. W. Cor. Broadway at 54th Street



Near 50th St. Subway Sta-
tion and 53rd St. Elevated.
"Broadway" cars from
Grand Central Depot pass
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Headquarters for
ARCHITECTS
and
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Near Depots, Shops and
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New and Fireproof
Strictly Firstclass

Rates Reasonable

\$2.50 with Bath and up.

Ten Minutes Walk to Twenty Theatres

Harry P. Stimson, formerly with Hotel Imperial
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Send for Booklet

Save Your Plate Glass



Use the Bar that will best protect it
from high wind pressure, etc. "The Petz
Bar". It is strong, rigid, artistic in ap-
pearance, and requires the least space of
any safe bar. The superiority of the "Petz Bar"
is recognized by those who are best able to know—
the insurance experts and architects.

With this bar the glass is set from outside—an
advantage that will at once occur to you.

Our booklet, "Modern Store Front Construction",
shows the application of "Petz Bars" to various forms
of fronts. Send for it to day.

DETROIT SHOW CASE CO.

SOLE MAKERS

491 West Fort Street

DETROIT, MICH.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Give Your Shoulders FREE PLAY

Don't make them sore and tired by wearing the old-style rigid-back suspenders, which tug, strain, and chafe with every move you make. Get a pair of



President Suspenders

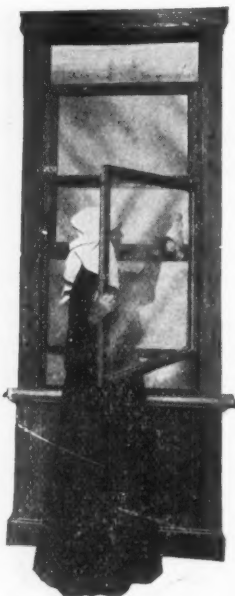
and learn what real suspender comfort is. The sliding cord in the back of President Suspenders (which is not found in any other suspender) permits them to "give and take" with every motion of the body. They rest lightly upon your shoulders and allow you perfect freedom of movement. The Extra Heavy Weight, made especially for workers, outlasts several pairs of ordinary suspenders. Light and medium weight for dress wear. Extra lengths for tall men. Every pair sold with the maker's guarantee—satisfaction, new pair or money back. If your storekeeper cannot supply you, we will, postpaid, upon receipt of price, 50c. Get a pair today.

THE C. A. EDGARTON MFG. CO.

739 Main Street : : : SHIRLEY, MASS.

Turnbull Universal Window

THE LADIES ALL APPROVE IT



This window can be washed outside and in, the cleaner standing on the floor.

It is dust-proof, also air-tight and water-proof.

There is no danger to life or limb in cleaning this window, as the cleaner stands on the floor inside the building.

This is the window people have been looking for, for years.

It can be made both in sheet steel and wood.

It is cheap and durable.

This window slides up and down the same as any ordinary window.

Estimates submitted for any building
Write for circular and descriptive literature.

TURNBULL CO., 771, 263 La Salle St., CHICAGO

Don't Neglect Your Furnace

In spite of all the improved methods of heating the house which have been devised in recent years, the problem of heating the country home is still a vexed one. If wood is available for fuel, the big fireplace is sure to play a big and important part. The system which is generally regarded as the most desirable, especially by those who pay attention to sanitary precautions, is that of the direct radiation furnace, which does much to ventilate the house as well as to heat it. If the furnace is treated merely as a producer of heat, and the right treatment is given to the problem of distributing the heat in the several rooms of the house, it lends itself to the solution of the problem with special facility.

It should always be remembered that the principle governing the distribution of furnace heated air is the siphon principle. There should be a double system of pipes, one to carry the hot air to the rooms, and one to return the cool air to the furnace. The hot air should be taken in bulk as near its destination as possible. By this is meant that the hot air destined to warm two adjoining chambers should go in one pipe to a point near the registers, and then be divided and sent to each room. To prevent the hot air from this common conduit finding its way into either room in too great quantities, it is necessary to partition the conduit for a certain distance below the point where it is divided into two pipes.

The size of the conducting pipes must be carefully adjusted to the heating surface which they are to serve. One must have in mind the distance from the furnace, both vertically and laterally. A room directly over the furnace, to which the heated air will naturally arise, does not need as large a pipe as one situated at a distance from the furnace.

The cold air intakes must be carefully managed, and there should be no less than two of them, taking cold air from either side of the house. Cold air should always be taken from the lee side of the house, and that it may be so taken there must be an intake from more than one direction. It is quite possible to warm a house perfectly by means of a furnace fire, but not unless special care is exercised in every detail of the installation, and intelligence is always brought to bear in its operation. The furnace is not an automatic machine and must not be treated as such. All trouble is justified by the fine, live warmth diffused by a good furnace properly attended.



Non-Burnable Kindling

According to the *Lumberman's Review*, there was weeping and wailing and gnashing of teeth up on New York's East Side a few days ago when a pushcart vendor of kindling wood sold some carefully-prepared bundles of fireproof wood to the dwellers in that section. It happened this way: The Germans had



WE tell you to put on a "Pioneer Roof," and forget it. Needs no paint or repairs. Sun-proof and rain-proof. Not affected by extremes of heat or cold. Suitable for all kinds of buildings, pitched or flat roofs. Comes in handy rolls. Easy to lay; anybody can do it; no special tools needed.

Now then, let us send you samples, a copy of our 32-page Roofing Booklet "A," and the name of our nearest dealer.

Asphalt and Asphalt Paint

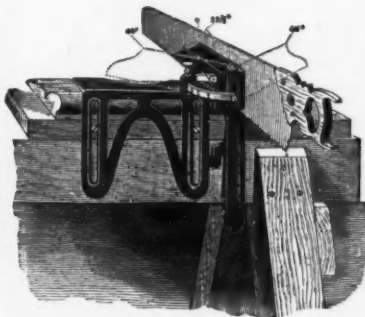
The Pioneer Roll Paper Company are refiners of Asphalt and manufacturers of Asphalt Paint, which they supply direct from their factories in Los Angeles.

California Agents for Northwestern
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PIONEER ROLL PAPER CO.

Department 21 :: LOS ANGELES, CALIFORNIA

"SEAVEY" MITRE BOX meets every requirement



Cuts any angle—special or regular.

Needs no special saw.

Lightest box made

Can be instantly applied.

The *only* Mitre Box.

Made so that it is attachable to inside or outside work without a special attachment.

Prices to-day from your jobber or write for the
"Green Book"

SMITH & HEMENWAY CO.

108-110 Duane Street,

NEW YORK :: U. S. A.

Fighting the Trust!!

The Smashing Anti-Trust Fight
Now On!



**Trust
Prices
Eclipsed at Last!**

An absolutely *first-class*, *high-grade* watch at a price within the reach of the people—The Burlington Special Anti-Trust Watch.

The World's Masterpiece of watch manufacture—the Burlington Special—now sold direct to the public at its *rock-bottom*, *anti-trust* price (and besides without middle-men's profits).

We do not care what it costs—we *will* uphold our independent line and so we are making the most sweeping, baffling offer ever made on watches.

Some trusts are legal and some are not. We do not say that the watch trust is illegal; but we do say that the methods of the giant factories in making "contracts" with dealers to uphold double prices on watches is very *unfair*—unfair to us and unfair to you. Hence our direct offer on the Burlington at the very same price the Wholesale Jeweler must pay.

This is *your* opportunity—**NOW**—while this great anti-trust offer lasts—to get the best watch made anywhere at one-third the price of other high-grade watches. Furthermore, in order to fight the Trust most effectually, we even allow terms of **\$2.50 a month** on our finest watch—easiest possible payments at the rock-bottom price, the identical price the WHOLESALE Jeweler must pay.

WATCH BOOK ON REQUEST

Now do not miss this opportunity. At least we want you to know about WATCHES and WATCH PRICES. Write today.

Be Posted

Send a postal or letter, or simply mail coupon without sending a letter and get the free book.

**BURLINGTON
WATCH CO.,**

19th & Marshall
Boulevard,
Chicago

Burlington Watch Co., Dept. 6599, 19th and Marshall Blvd., Chicago

Please send me without obligation and prepaid your free book on watches and copy of your \$1,000.00 challenge—with full explanations of your cash or \$2.50 a month offer on the Burlington Watch.

Name Address No Letter Necessary
Coupon will do

been holding a big Saengerfest in Madison Square Garden, and under the rules of the building inspectors they were obliged to use treated or fireproofed lumber in the construction of booths and stands. After the show was over this old lumber was torn out and piled in a heap outside the building. The pushcart man found that it was his for the asking, and, assisted by a lusty crew of co-laborers, he proceeded to transfer it to his woodyard, where it was worked up into kindling and tied in five and ten cent bundles. It was sold to the tenement dwellers at special bargain prices. It was at this stage of the proceedings that real trouble began. It was bought for use as kindling. Newspapers printed in English were lighted, but the wood would not burn. Then some papers printed in Greek and even Yiddish were resorted to, with the same result. The dwellers sought Sig Ripkin, the push-cart man, for an explanation. Sig had decamped. An irate housewife, mystified by this non-flammable wood, thrust a stick into a neighbor's glowing coal fire, but even this process did not even char the wood. Sig, who had defied and fought single-handed the kindling-wood trust, winning a hero's laurels in the tenement district, is now ostracised, and all because the science of fire-proofing wood has been so far perfected that lumber is actually made non-flammable by the process.

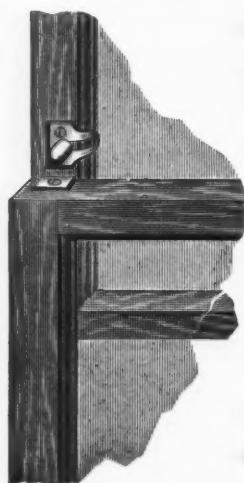
Novel Method of Concreting Under Water

The operation of depositing cement under water to form concrete foundations and similar work is always interesting, and this character of work is being done at the present time on a larger scale than ever before in the construction of the Detroit river tunnel of the Michigan Central Railroad. In depositing the material "tremies" are made use of, operated from a barge

carrying the concrete mixing plant. These are riveted steel tubes, slightly longer than the deepest part of the river, and discharge the concrete directly into the forms. To exclude water while the first batch is being laid, two or three empty cement bags are stuffed into the top of the tube and the wet concrete is poured in, forcing the bags down and the water ahead of them, and by continually maintaining the tube full of concrete no river water can enter. After the concrete begins to emerge from the lower end, the tube is kept several inches under the surface of the mass, forming a seal. As the concrete builds up in the forms, the tremie tubes are raised in the towers supporting them on the barge. A floater rises with the concrete and indicates through a wire to the operator on the scow when the tremie should be raised. The wet concrete distributes itself from the bottom of the tremie tub in a circle about ten feet in diameter.

Selling Furnaces Direct

Nothing is more essential to home comfort and good health than proper heating. The problem of which system to install is not given as careful study and attention as it should by many home builders. Too frequently the purchaser depends upon those not trained or qualified to know the *actual* necessities in the matter of the size furnace required to properly heat a given space and in the plan by which the heat is to be distributed after it is generated in the furnace. Whether the building is a five to twelve-room house, a large store, church or school, a specific, definite *heating plan* should be made, based on careful study of the plans of the building from basement to garret. The heating plan should be laid out by a *heating expert*. In very rare instances does an architect, contractor or furnace dealer possess the special knowledge and experience necessary to qualify him to properly prepare the best heating plan. Of course lots of them *guess* at it and come near enough to prevent discovery by the owner of the fact



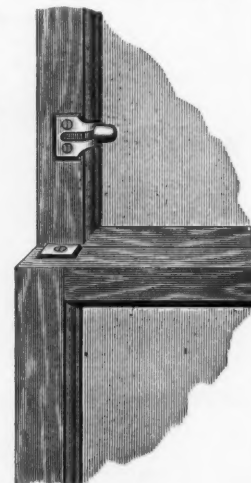
Ventilation Without Risk

IVES PATENT VENTILATING LOCK

A safeguard for ventilating rooms, allowing windows to be left open at the top, the bottom, or both top and bottom with entire security against intrusion, a permanent fixture easily applied and quickly operated, affording three times more protection to the window than the ordinary sash fastener.

THE H. B. IVES COMPANY
NEW HAVEN, CONN., U. S. A.

88-page Catalogue Hardware Specialties mailed free



GENUINE BANGOR

Roofing Slate
Structural Slate
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Large Facilities, Prompt Deliveries

EAST BANGOR CONSOLIDATED SLATE CO.

East Bangor, Pa.



AN EDWARDS METAL SPANISH TILE ROOF

COSTS NO MORE THAN A GOOD TIN ROOF

Artistic and Ornamental in appearance and is positively guaranteed to be Fire, Lightning, Rain, Storm and Wind proof.

Its extreme lightness (about one-eighth that of slate), durability and moderate cost commend it to those wishing something out of the ordinary in roofing.

Manufactured from best quality Worcester Grade Terne Plate, furnished painted or galvanized (galvanized after being formed) size 10 x 14 inches.

Descriptive Booklet sent free on request.

The Edwards Manufacturing Co.

"THE SHEET METAL FOLKS"

401-417 Eggleston Ave., CINCINNATI, OHIO

Commonwealth Hotel

OPPOSITE STATE HOUSE, BOSTON, MASS.



Offers rooms with hot and cold water for \$1.00 per day and up, which includes free use of public shower baths.

Nothing To Equal This in New England

Rooms with private baths for \$1.50 per day and up. Suites of two rooms and bath for \$4.00 per day and up. Dining Room and Cafe First-Class. European Plan.

Absolutely Fireproof

Stone floors, nothing wood but the doors. Equipped with its own Sanitary Vacuum Cleaning Plant.

Long Distance Telephone in Every Room

Strictly a Temperance Hotel

SEND FOR BOOKLET

STORER F. CRAFTS, Prop.



Surrounded with Knowledge

With this complete ten volume set of

Architecture, Carpentry and Building

you can practically surround yourself with the knowledge you need in your every day work. You can have at your fingers' ends, for instant use, the help and advice of forty experts.

The Reference Value Is Guaranteed

by the fact that they are compiled from text books used in the correspondence courses of the American School.

Read What It Comprises This great work is the most exhaustive, comprehensive and authoritative work on the building trades ever published. Covers every branch of building construction, from plans to finishing touches. Bound in half morocco; 4,670 pages, 7x10 inches, printed on special paper; large, clear type.

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Building Superintendence—Building Materials—Carpentry—Stair Building—Reinforced Concrete—Masonry—Estimating—Contracts and Specifications—The Law of Contracts and Liens—Hardware—Plastering—Painting—Heating—Ventilation—Wiring for Door Bells—Burglar Alarms—Steel Construction—Elevators—Sheet Metal Pattern Drafting—Mechanical, Architectural, Freehand and Perspective Drawing—Lettering—Blue Printing—Shades and Shadows—The Greek and Roman Orders of Architecture—Rendering in Pen, Ink and Wash—Water Color Hints for Draftsmen.

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For a short time we will include, as a monthly supplement, absolutely free of charge for one year, the TECHNICAL WORLD MAGAZINE. This is a regular \$1.50 monthly, full of Twentieth Century Scientific facts, written in popular form. Also contains the latest discussions on timely topics in invention, discovery, industry, etc.

AMERICAN SCHOOL OF CORRESPONDENCE
CHICAGO, U. S. A.

FREE OFFER COUPON

American School of Correspondence:

Please send set Cyclopedia, of Architecture, Carpentry and Building for 5 days' free examination; also Technical World for 1 year. I will send \$2.00 within 5 days and \$2.00 a month until I have paid \$24.00; or notify you and hold the books subject to your order. Title not to pass until fully paid.

NAME.....

ADDRESS.....

EMPLOYER.....

Amer. Carp. and Bldr. 12-09

that his building is *not* heated as *perfectly* or as *economically* as it could be, had the heating been planned by a *real specialist* in this particular and important work.

The remarkable success of the Hess Warming & Ventilating Company, of Chicago, who for the past seven years have sold furnaces *direct from their factory* to the customer, lies in the fact that no heating equipment is sold or shipped by them until they have had one of their own experts make a study of the plans of the building and then draw a separate and exact heating plan for each outfit ordered. This plan is followed in preparing the pipes, flues, fittings and registers and shows the exact location of every foot and inch of the outfit as it is to be placed in the building.

The Hess Warming & Ventilating Company has been manufacturing heating outfits for thirty-six years, and long ago discovered that the furnace manufacturer, with a product of

real merit, must see to it that the heating outfit is properly made and installed, and that the *only* satisfactory way to protect his reputation and give the customer complete satisfaction, was to sell the customer *direct* and thus become *directly* responsible for results.

To do this meant that a very broad guarantee, without any strings to it, must be made a part of the selling conditions. How unquestionably fair and broad is this company's proposition, is shown by the following statements quoted from their advertising and circular letters:

"Hess furnaces for the past seven years have been sent to customers in every state in the Union, freight prepaid, *on approval*, and the money held back till sixty winter days of actual trial have proved that all our claims for superiority have been fulfilled."

"We do not ask you to believe a lot of theories. We don't ask you to send us your money before you see the goods; we won't ask you even to pay the freight charges on our heater. All we ask of you, if you need a furnace, is to investigate—to put your name on a postal card, mail to us and ask us for our booklet on 'Modern Furnace Heating.' This booklet, which has been issued in numbers exceeding 100,000, is an authority on furnace heating, and copies have been requested by many colleges, libraries and other educational institutions, for reference in engineering and mechanical courses. It instructs fully in the principles and practice of furnace heating, and should be in the hands of every builder and house owner. It's free, on request."

It is a fact that no purchaser of a furnace and heating outfit from The Hess Warming & Ventilating Company runs any risk of loss or dissatisfaction in doing business with this company. Their reputation and financial standing in the business world insures the full performance of every promise made. If in need of a furnace write the Hess Warming & Ventilating Company, 920 Tacoma building, Chicago.

Amatite Roofing

Amatite, however, is no more expensive than smooth-surfaced roofings of equal weight, and as soon as it is laid the work is all done. Not only can Amatite be left unpainted, but its mineral surface actually makes painting impossible. There is accordingly a big saving in money, trouble and bother.

BISHOPRIC WALL BOARD

Better and Cheaper than Lath and Plaster. No Dirt, Cracks or Damp Walls. You Yourself Can Nail it to Studding—All Ready for Paper or Paint

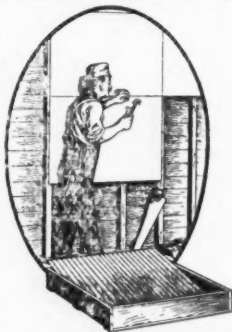
THIS wonder worker in building construction is used as a substitute for lath and plaster; also as sheathing. It is made of kiln-dried, dressed lath, imbedded in hot Asphalt Mastic, and surfaced with sized cardboard. It is cut at the factory in 4x4 ft. sheets, which are nailed to studding all ready for wall paper or paint.

Bishopric Wall Board is clean, sanitary and odorless; is guaranteed not to shrink, warp, crack, flake or blister; is proof against moisture, vermin, heat or cold. Being a non-conductor, it saves fuel in winter and keeps the building cool in summer. It also deadens sound.

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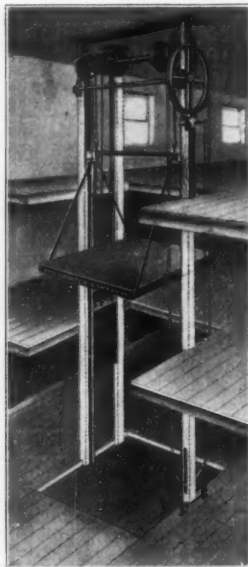
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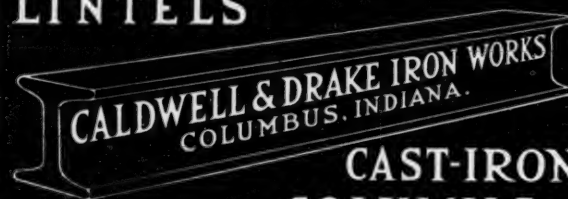
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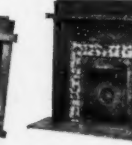
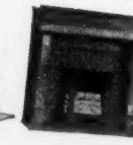
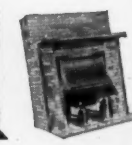
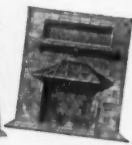
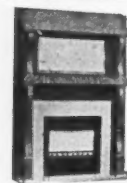
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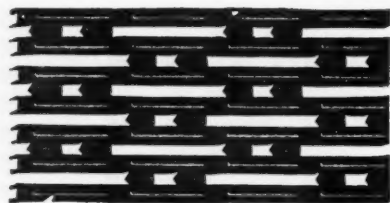
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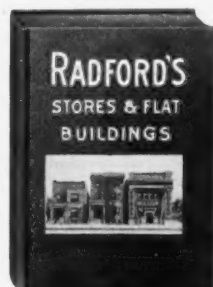
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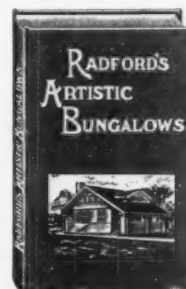
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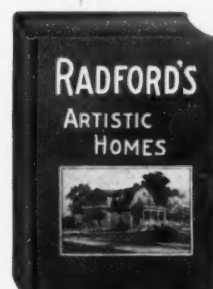
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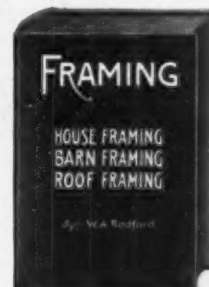
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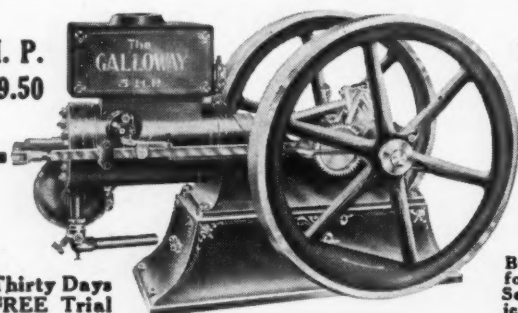
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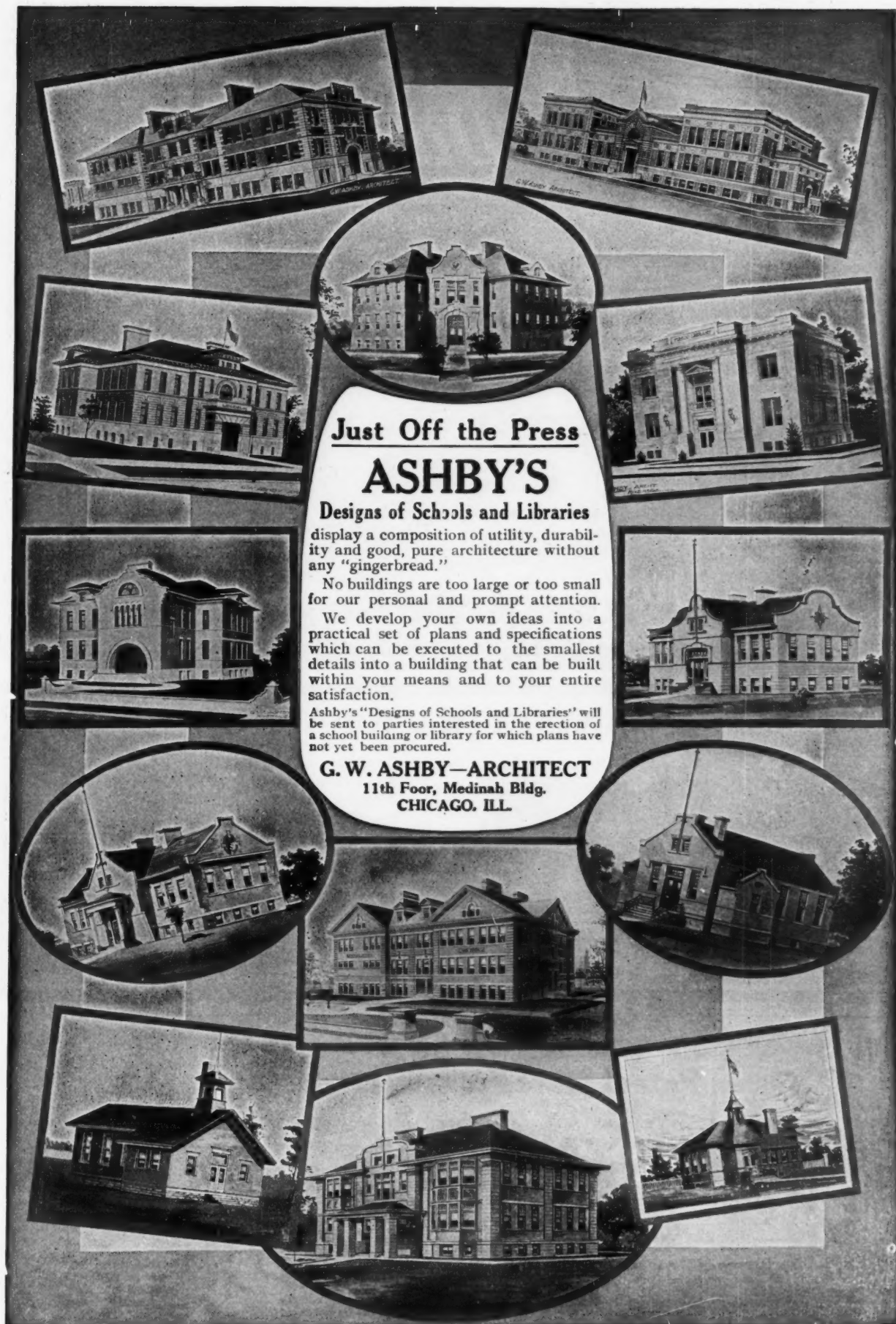
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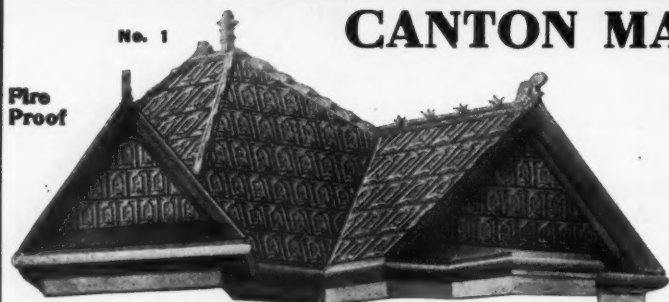
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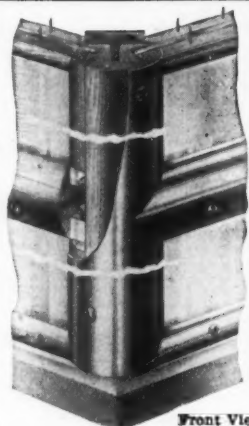


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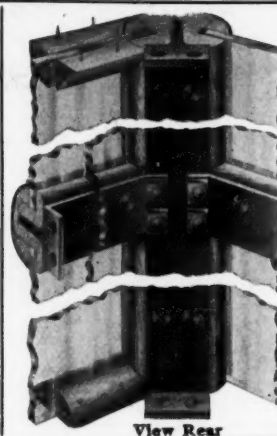


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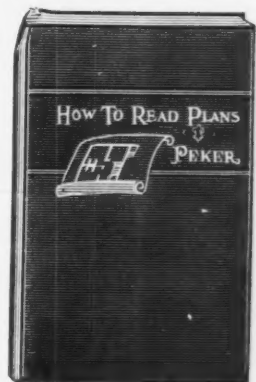
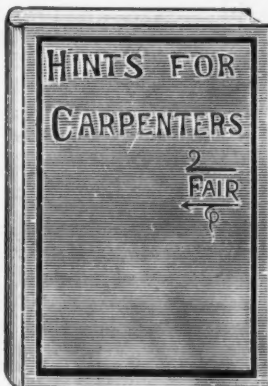
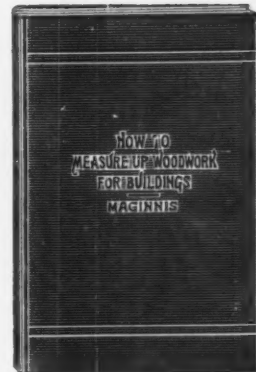
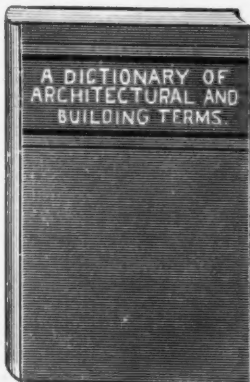
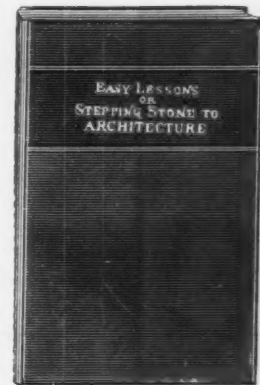
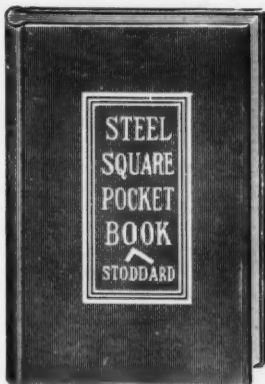
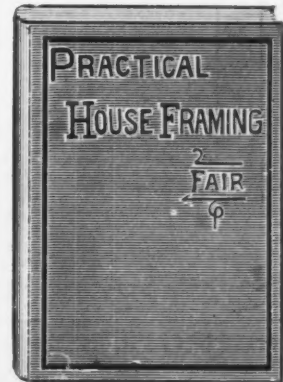
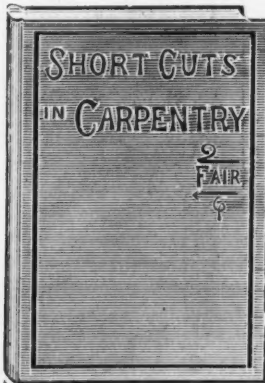
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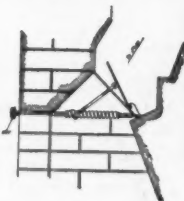
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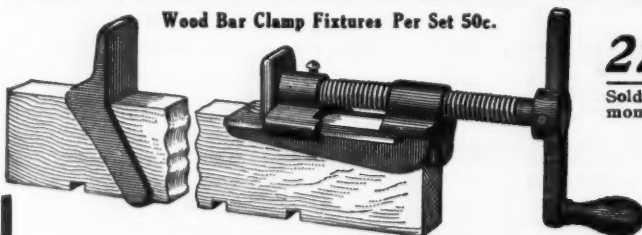
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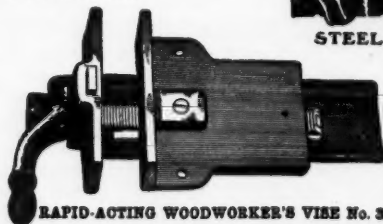
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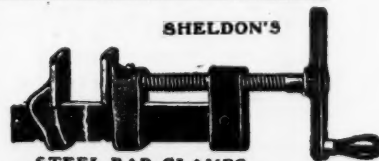
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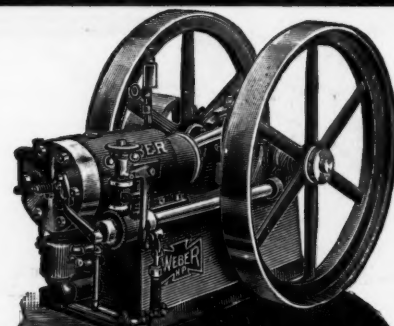
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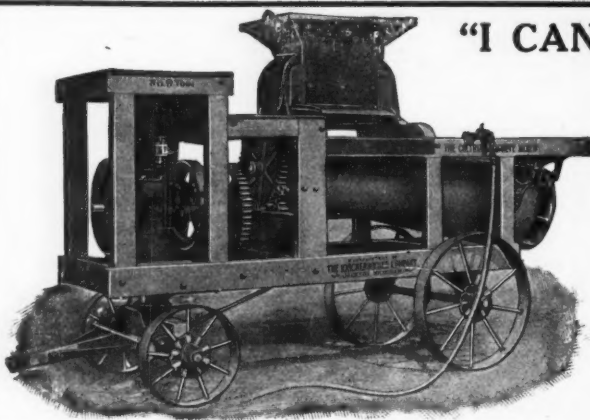
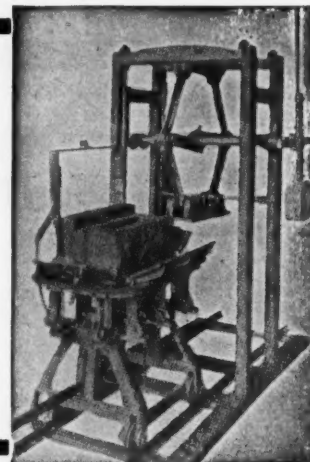
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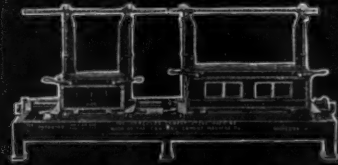
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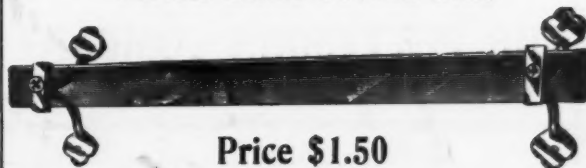


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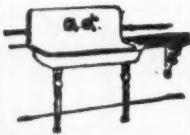
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Luxurious Enamel Bath Tub of guaranteed quality. Will wear forever.



Superb Bath Room Outfit. None better, at any price. **\$35.00**



\$3.00 and up

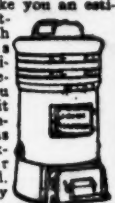
Laundry Tubs all styles and sizes.



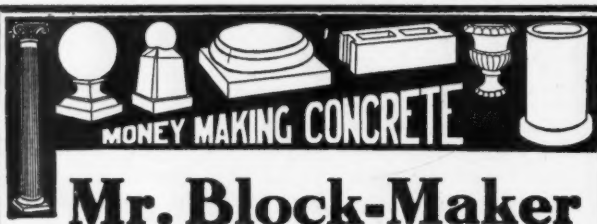
Low-down and high combination Closets. Guaranteed to be equal to the best in the market. Use in the most palatial homes **\$11.50**

HEATING PLANTS.

Let us make you an estimate on a heating plant. With instructions from our engineering department, you can install it yourself. Simple and safe as a stove. No expense after once installed. The only healthful economic method of heating your home. Plans free. Tools loaned. Boiler only **\$65.00 and up**



JOHN HARDIN CO., One-Quarter Century at **4549 Cottage Grove Avenue, Chicago**
Send for Catalog A, Dept. 13



MONEY MAKING CONCRETE

Mr. Block-Maker

Wet Process is Right.
Face down is Right.
Three blocks at a time is Right.
Triple Tying is Right.
Damp Curing is Right.

The Mogul Invincible Block Machine
COMBINES ALL THESE

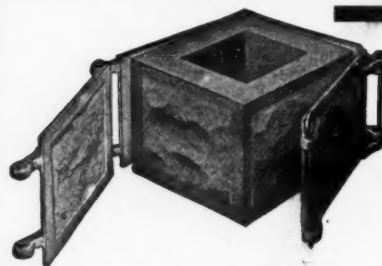
IT IS RIGHT

It is 48 inches long and will make three 16" or two 24" blocks at one operation. It makes sills, caps, copings, rails and steps, faster and better than a special sill machine. It has every adjustment that any other machine has and many that no other machine has.

PRICE—Machine and Outfit, \$75.00

WRITE FOR CATALOG

THE PETTYJOHN COMPANY
634 No. 6th St., TERRE HAUTE, IND.



First, look at this mold and then look at the chimney.

This is a fair illustration of what our molds will do, but it is only one of the many purposes to which they can be adapted. You can make Porch Piers, Porch Columns, Chimney Blocks, Ornamental Posts, and a variety of other things.

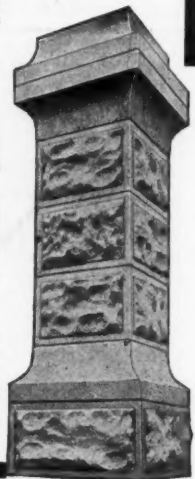
All Plates are interchangeable. You can make a great variety of sizes from one set of molds. This gives you a large equipment for a small price.

21 Sizes for \$25.00

Every mold is aluminum finished to prevent rusting. Every mold is perfectly square and rigid.

Send for Catalogue. It gives details. It gives valuable information about concrete work, cement block and brick machines, and concrete tile. Send to-day while you think of it.

W. E. DUNN & CO.
1332 Grand Avenue :: CHICAGO



All blocks made face down; automatic in action; great strength; easy to operate; very rapid; large range; simple in construction.

HAYDEN CONCRETE BLOCK MACHINES AND MIXERS

Molds, Power Tampers, Cars, etc.



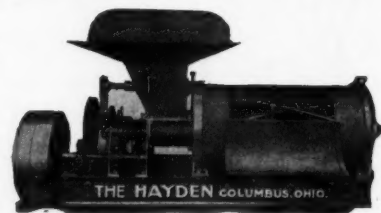
The Hay on 16-Inch Down Face Machine
Other sizes made: 24-inch, 32-inch and 36-inch.



Porch Column Molds, Spindles, Balls, Lawn Vases, etc. Best Quality, Latest Designs.
Send for Special Mold Catalog Before Buying.

The Hayden Automatic Block Machine Co.
112 West Broad St., Columbus, Ohio

New York and Foreign Representative
H. W. REMINGTON, 19 South Street, New York, N. Y.
Send for Our General Catalog "M" Today



The Hayden Concrete Mixer mixes sand, gravel or crushed stone—any proportion. Maximum capacity 70 yards per day. Water arrangement perfect. Uniformity and thoroughness absolute.

View of mixer on steel skids showing clean-out door open

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NOTICE TO ADVERTISERS

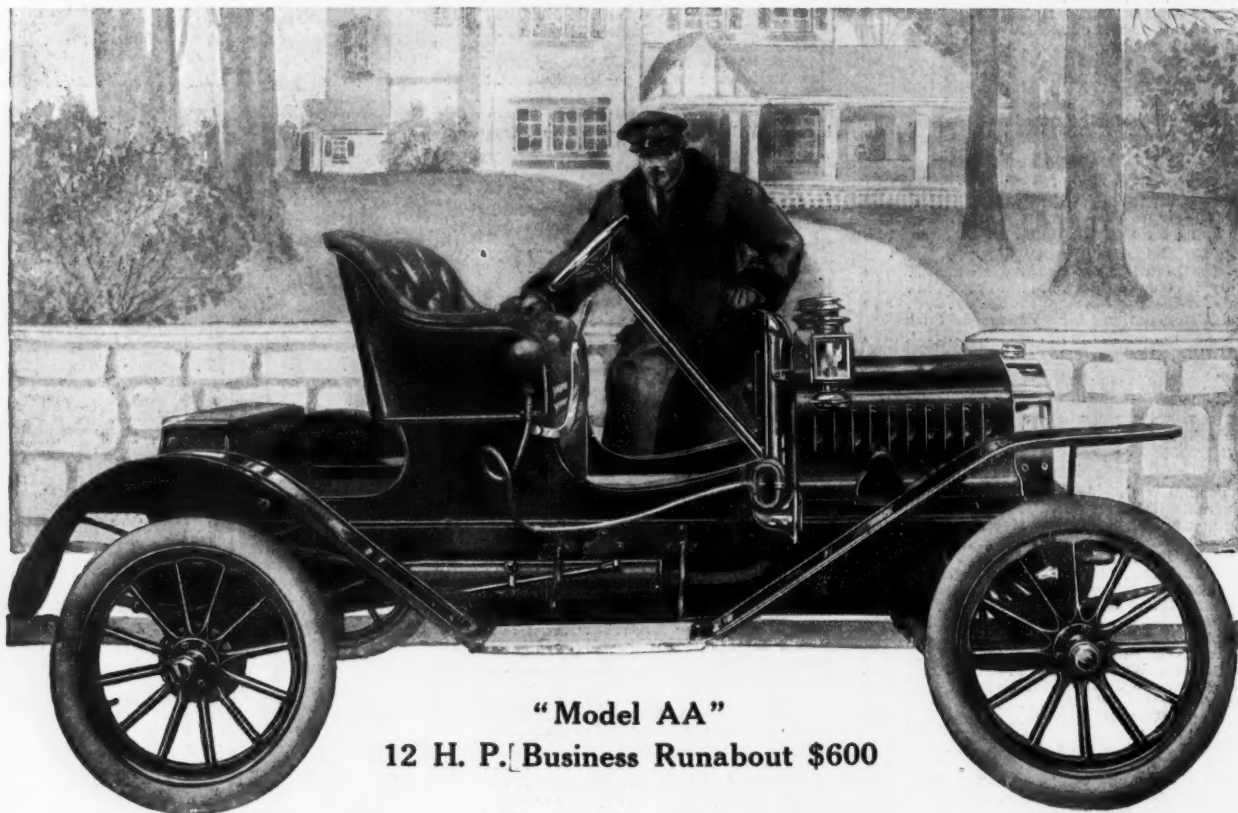
New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than December 20 in order to insure insertion in January number.

"It is certain the advent of the Maxwell Runabout at \$600 sounds the knell of the horse and buggy.

Benj. Briscoe Pres't."

"Maxwell"

Perfectly Simple—Simply Perfect



"Model AA"
12 H. P. [Business Runabout \$600

**Not a big Car made cheaply, but a business Runabout
built as well as we know how—Magneto included**

From the Stone Age Civilization and Transportation have advanced together. The world's progress is measured by its ability to move rapidly. Individual transportation has been solved by the motor car, and as the automobile has marked an epoch, so has this new MAXWELL model established a new standard as a business runabout. No car is more satisfactory. It is the simplest to drive, the easiest to care for. No car is more reliable. For Doctors, Lawyers, Contractors—for all who have need of transportation it is an essential. For the man who owns a large touring car this runabout is just the thing for meeting trains, for errands and for all purposes where a two-passenger conveyance is required.

If You Are Interested you want to know about the car itself—the two-cylinder, 12 H. P. motor is located in front under the hood—for a 12 H. P. automobile, more than 2 cylinders are unnecessary—less than 2, unsatisfactory. The drive is by shaft—no chains—dust and mud proof. The frame is pressed steel, the same as in the costliest cars. The full elliptic springs insure easy riding. The engine is water cooled, with the famous MAXWELL Thermo-Syphon System—it cannot fail. And lastly, we give a magneto to furnish an inexhaustible supply of electricity. When some smooth salesman tells you that batteries are as good—that a single cylinder car, for example, does not need a magneto, don't be fooled—no car is complete without one.

The Advertising Manager of "Life"

is Mr. George B. Richardson. He is a busy man, to whom an automobile is a business proposition. We submit the following letter:

Allendale, N. J., September 15, 1909.

Maxwell-Briscoe Motor Co.

Gentlemen—Up to six weeks ago I had been driving a horse to the station, four miles, morning and evening, daily.

My business had grown until time became a problem, and a friend of mine, who owns three machines, said: "Get a Maxwell, and it will solve the question."

It might interest you to know your machine has cut the time down to one-third, and aside of this, have had more pleasure and seen more country than with my horse in three years. Yours very truly, GEORGE B. RICHARDSON.

We Also Make

Model "E," a big, roomy 4 cylinder, 30 H. P. 5-passenger touring car, equipped with oil lamps, gas lamps, generator and magneto, \$1,500. Our Model "Q," 4 cylinder, 22 H. P. runabout holds the world's record for light cars, averaging 54.3 miles per hour in the Long Island light car Derby, price \$900. With rear seat for one, \$925. Rear seat for two, \$950, or toy tonneau, \$1,000.

Order Now

If you want one of these cars order now. The demand will be enormous. Let us send you the name of the nearest MAXWELL dealer, and our handsomely illustrated catalog, together with a valuable hand book, "How to Judge an Automobile." Please write today.

Sale of Maxwells to Date

Sold to Sept. 30, '09, 18,959
Sold during Oct., '09, 432

Maxwells in use
today 19,391

Maxwell-Briscoe Motor Co.
FORK STREET, TARRYTOWN, NEW YORK

Licensed under Selden Patent

MAXWELL FACTORIES

NEW CASTLE, IND.
PROVIDENCE, R. I.
PAWTUCKET, R. I.
KINGSLAND POINT, N. Y.

WE INITIATE -- NEVER IMITATE

Time-Savers

50%

of the time required to hang a door can be saved by using "**National**" Ornamental Butts. Some contractors say they can save more. Figure up the time spent in a year in hanging doors and you will see how much it is to your advantage to use them.

Another exclusive feature—The new false **tip** is **threaded** and screws into the butt. **The slot is for a screw-driver**, making it easy to remove the pin. Also shows which is the bottom of the butt.

STYLE No. 400B

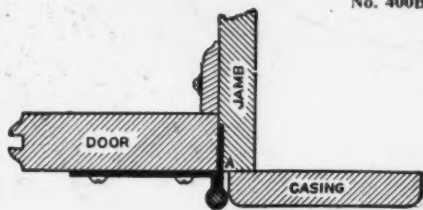
here illustrated can be furnished in any finish and in all sizes from 1½-inch to 4½-inches inclusive.



No. 400B

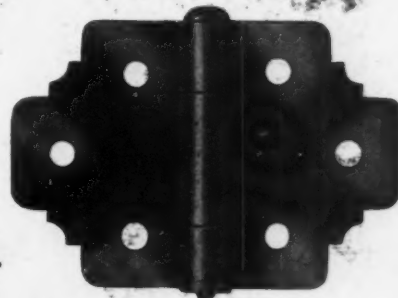
Ask for Booklet, "Ornamental Ideas," and give us your dealer's name.

Directions—Attach butt part "A" to jamb first, then set and wedge door into position and attach Ornamental Leaf to surface of the door. Simple, isn't it?



Be sure to look for the flag—it's stamped on all "National" Butts.—It stands for quality.

National Manufacturing Co. Sterling, Ill.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Mantel Prices Slashed!

**Carpenters, Contractors: Save
25% to 50%
and get
Highest Grades
and Styles**

Gordon-Van Tine Mantels, Consoles,
Grates, Andirons, Fire Sets, Gas Logs,
Fenders—all Fireplace Fittings at Tremendous
reductions in prices!

They're all in the very latest styles
and are noted for elegance and lines of refinement.

Mail Coupon for Catalog

Our 1910 catalog shows at a glance the quality of Gordon-Van Tine Mantels. In plain figures below each cut is the price. The cuts are made from actual photographs of the mantels—so this catalog is a veritable salesroom in print. Investigation and comparison of prices and quality with local dealers' figures prove that we save you 25% to 50% on every purchase.

Take Advantage of Our Great Buying Power!

Dealers buy of us because we can sell best mantels and fireplace equipments at lowest prices. Our tremendous buying power vouches for this. Pocket the local dealer's profit yourself! Buy direct from us. We sell hundreds of complete fireplace equipments where the dealer sells one. Take advantage of this cut in wholesale prices.

We Guarantee Quick, Safe Delivery

We have styles to fit all surroundings. Elegance and handsome designs combined. Your selection of Gordon-Van Tine fittings will earn you the gratitude of any owner—every owner—and you know what that means in your business. Besides, the cost to you is far less than that of inferior, cheaply-made products. Think that over. Select the equipment that conforms to the interior of the homes you are building—you have a great variety to pick from. Take advantage of the special bargains in **Andirons, Fire Sets, Gas Logs, Consoles, Grates, Fenders.** Mail that coupon today.

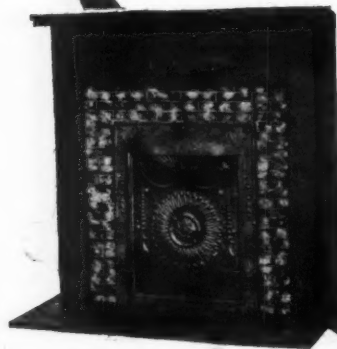
Get Our Catalog of 5,000 Building Material Bargains FREE

If you have not already received our Great Free Catalog, get it at once without any charge whatever. Place it before you with plans and specifications for one of your jobs you're figuring upon. On one side of a sheet of paper place our figures on what you need—on the other side the local dealers' figures. Then subtract the dealers' from ours—that leaves from 25% to 40%—a conservative estimate—more profit on that particular job and higher grade materials when you buy of us. There you have bed-rock proof. All this means a tremendous increase in business for you—you can't afford to overlook this money-saving opportunity. Better mail that coupon today to

Gordon-Van Tine Company

000 Federal St.

Davenport - Iowa



The Cottage Mantel

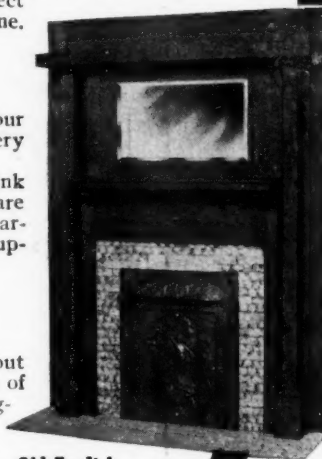
Height 4 ft., width 4 ft. Tile opening 36 in. wide, 36 in. high. Tile projection 4 in. STOCK WOOD—Plain oak, finished golden oak.

Colonial Mantel

Height, 7 ft. 3 in., width, 5 ft., Square Plain edge Plate mirror, 36x16 in., Tile opening, 42 in. wide, 42 in. high, Tile projection, 3 in., Pilasters, 6 in. face by 8 in. return to wall line. STOCK WOOD—Quarter Sawed Oak, finished golden oak, Birch, finished imitation mahogany.

Mission Mantel

Height, 6 ft., 6 in., width, 5 ft., Tile opening 42 in. wide, 39 in. high, Tile projection, 4 in. Columns, 2 1/4 in. STOCK WOOD—Plain Oak, finished golden oak.



Old English Mantel

Height 6 ft. 8 in., width 5 ft. Square beveled plate mirror 28 x 16 in. Tile opening, 36 in. wide, 36 in. high. Tile projection 4 in. Columns 3 in. STOCK WOOD—Plain Oak, finished golden oak.

COUPON

**Gordon-Van Tine Co., Davenport, Iowa.
Gentlemen:**

Please send at once
Free Books checked
below.

Name.....

Address.....

Mantel, Fireplace accessories ☐
5000 Building material bargains ☐
(Mark X in squares opposite Free Books desired)